The American City

JULY 1954

Roughly 500 U. S. cities dispose of refuse by the fast-growing use of the sanitary fill method. The tenth installment of THE AMERICAN CITY'S sanitary fill series appears on page 87 in this issue. The accompanying illustration shows the Tulsa, Okla., sanitary fill, with a Caterpillar D7 tractor and a Northwest crane doing the work.

Garden State Park

one of America's most modern race tracks

(right) A close finish at the Garden State Park track in Camden, N. J.

(below) Two of the Park's extensive parking fields. Up to 15,000 cars can be accommodated.

All Texaco Asphalt paving at Garden State Park has been constructed by the Union Paving Company of Philadelphia.

Photos by H. Armstrong Roberts

Patrons park, drive and walk on 62 acres of resilient Texaco Asphalt

The management of New Jersey's Garden State Park has overlooked no detail which would add to the convenience and comfort of horse racing fans, including an escalator to take patrons up into the stands.

Parking areas for 15,000 cars are laid out to provide the easiest and quickest access and departure. Roadways fan out from these areas into State highways leading in all directions from the Park.

Approximately 300,000 square yards of resilient Texaco Asphalt paving of the plant-mix type has been constructed on parking areas, roads and walks. For automobile traffic, the Park used a durable Fine-Aggregate Asphaltic Concrete Mix. Walks are surfaced with a semi-hot Asphaltic Concrete Mix, containing a ¼-inch stone aggregate. All Texaco Asphalt surfacing is 2 inches thick, laid on a gravel foundation. Some of the paving has been in service more than 10 years and is in excellent condition today.

Texaco Asphalt Cements, Cutback Asphalts and Slow-Curing Asphaltic Oils offer a wide choice of surfaces for streets, roads, airports and parking areas. Helpful information about materials and methods used in all types of Asphalt construction is supplied in two booklets which can be obtained without obligation by writing our nearest office.

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TEXACO

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JULY 1954

The American City

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"Is it for ME?"

You kind of hope it is—for good news and good times often come your way by telephone.

Maybe it's a date for sister Sue. Or an important business call for Dad. Or Bill asking if Jimmie can go to the movies. Or Grandma calling Mother to find out if things are all right. And everything is more likely to be all right when there's a telephone in the home.

In many, many ways, the telephone is a real friend of the family. And the cost is small—just pennies a call.

BELL TELEPHONE SYSTEM

LOCAL *to serve the community.* NATIONWIDE *to serve the nation.*

City Making and City Planning

45 Years of Consistency

VOL. I, No. 1 of THE AMERICAN CITY quoted a statement by John Nolen that:

> City Making or City Planning is simply a recognition of the sanitary, economic, and esthetic laws which should govern the original arrangement and subsequent development of our cities.

At a time when the "city beautiful" was the dominant idea in urban planning, it is significant that Dr. Nolen placed sanitation ahead of economics and esthetics as an essential for the building of better cities.

Since September 1909, when that statement was printed, 538 monthly issues of THE AMERICAN CITY have been published. Throughout this period of nearly 45 years, sanitary engineering—the branch of civil engineering dealing with water supply, sewage and waste disposal for cities, and other sanitary problems—has commanded more space in this magazine than any one of the many other problems confronting local officials.

Economics and Esthetics

John Nolen's second requirement of "city making"—sound economics—is recognized in the amount of space devoted by THE AMERICAN CITY to the building of communities where business and industry can thrive and grow. This involves the construction, maintenance, lighting, and cleaning of an adequate system of streets and public utilities; efficient fire and police protection; and problems of traffic and transit. Economic factors involve also the use of modern equipment by all branches of city government, including business machines and other labor-saving devices at city hall.

Esthetic requirements — the third of Dr. Nolen's essentials—THE AMERICAN CITY would define broadly enough to include parks, playgrounds, and shade trees; control of the private uses of land through zoning laws well drafted and enforced; a minimum of offenses to the eye, the ear, and the nose.

A movement combining the esthetic and the "practical" to which THE AMERICAN CITY has been able to give added impetus in recent years is the eradication of slums and blighted areas, coupled with modern methods of urban rehabilitation and redevelopment.

Planning's Place in the Picture

And where does — or should — planning come into this picture? The answer is—*everywhere*. The 9-page Professional Service Directory in the back of each issue of THE AMERICAN CITY testifies to widespread acceptance of the need for forethought and expert advice in the building and operation of the modern city. Listed here are city planners and a wide variety of consulting engineers — civil, sanitary, mechanical, and electrical — landscape architects, air-pollution engineers, photogrammetric engineers, traffic consultants, airport designers, public administration consultants, and many other specialists in the design and construction of the many requirements of the city of today and tomorrow.

The Aim of the Editors

A constant aim of the editors is to provide in each issue of this magazine articles and items of direct interest to every reader—whether he be an administrative, engineering, or policy-determining official, department head, consultant, or local civic leader.

Realizing that no magazine — no matter how large—could provide its readers with "all the news that's fit to print," THE AMERICAN CITY publishes every month numerous abstracts, reviews, or listings of books, reports, catalogues, conference papers, and other printed matter of current value as sources of information. Here and in its monthly listings of city manager appointments, legal notes, coming conventions, and representative municipal bond issues, the news element is not overlooked. And the monthly issues are made easy to consult for articles and items of specific subjects through the Index to Contents found regularly on page 3.

Planning, in its broad sense, has been well defined as applying intelligent foresight to the future of your community. The objective of such planning, to quote another definition, is to achieve and maintain a community that in its physical aspects is satisfactory to its inhabitants. In this nationwide and worldwide movement, THE AMERICAN CITY is glad to have a pioneering and continuing part.

THE AMERICAN CITY

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VOLUME 69, NUMBER 7

"BEST PIECE OF EQUIPMENT ANY CITY COULD OWN"

This Caterpillar HT4 Shovel loads as many as 75 trucks a day with cinders for the streets of Wilkes-Barre, Pa., handles at least a thousand truckloads of heavy shale rock in a year, and in the winter is on the job up to 18 hours a day removing snow. No wonder George T. Smith, city superintendent of streets, says of this versatile and hard-working CAT* HT4 Shovel: "It's the best piece of equipment any city could own. We're extremely pleased with its performance, and with our other Cat-built machines."

The HT4 Shovel is designed as a unit, with the weight of the bucket distributed along the full length of the tracks. It can handle a lot of work *fast*, because even with its 1¼-yd. bucket fully loaded, the machine will not "dance."

This even distribution of stresses is one reason for the HT4's long work life. Another reason for its low upkeep and high trade-in is the careful design of the engine and hydraulic system seals. They're engineered to keep oil and lubricants *in* and harmful grit *out*.

Wilkes-Barre's association with Caterpillar products goes 'way back: the city also owns a durable No. 10 Auto Patrol and No. 212 Motor Grader. Many cities have found that it pays to standardize on money-saving Cat equipment for ease of maintenance, operator familiarity, and simplified parts inventory.

Your Caterpillar Dealer will show you that the HT4 is designed to do more work at *less* cost for your city than any other shovel of its size. Call him today—and count on him whenever you need dependable service and genuine Caterpillar parts.

Caterpillar Tractor Co., Peoria, Ill., U.S.A.

CATERPILLAR*

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NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

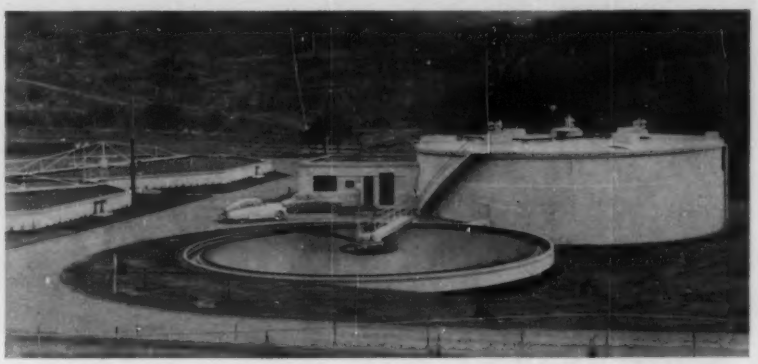
Sewerage & Sewage Treatment

Seven Municipalities—One Plant

ALTHOUGH seven municipalities are included in Sanitary District No. 1 of Marin County, Calif., the number of people served—30,000—is relatively small. The communities include Fairfax, San Anselmo, Ross, Kentfield, Greenbrae, Larkspur, and Corte Madera.

The plant provides two-stage Biofiltration to deliver a completely treated effluent. To provide the treatment, the plant uses two 70-foot Dorr clarifiers; two 110-foot Dorr distributors for the trickling filter, and an 80-foot digester with recirculating mixers. The treated effluent flows from a nearby creek into San Francisco Bay.

The plant was designed by Harry N. Jenks, consulting engineer, of Palo Alto, Calif.; and is managed by A. B. Shearer.

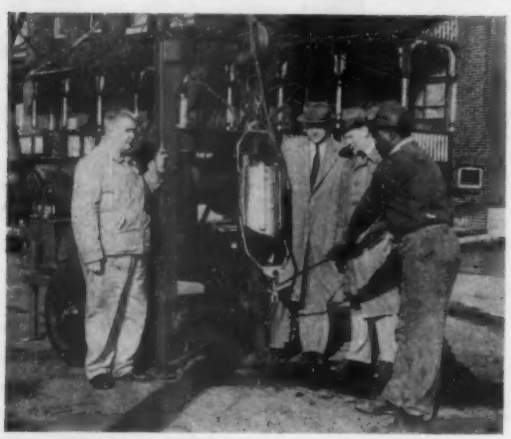


This plant permits seven municipalities to stop worrying about sewage purification.

Chester, Pa., Gets a Power Cleaner

SEWER CLEANING went on a powered status recently in Chester, Pa., when the city purchased a Stewart double-drum, single-unit, sewer-cleaning machine, which is powered by a gasoline engine. The machine, equipped with cables and a root cutter, will be assigned to a regularly scheduled sewer-cleaning program. This operation will inaugurate the first thoroughgoing program of preventive maintenance in the city's sewer system since the early 1940's. Heretofore, sewers were cleaned out only when they became clogged.

The sewer-cleaning program is being developed for this southeastern Pennsylvania community of 66,000 by M. Lawrence Comisiak, director of streets and public improvements, and Norman E. Young, city engineer.



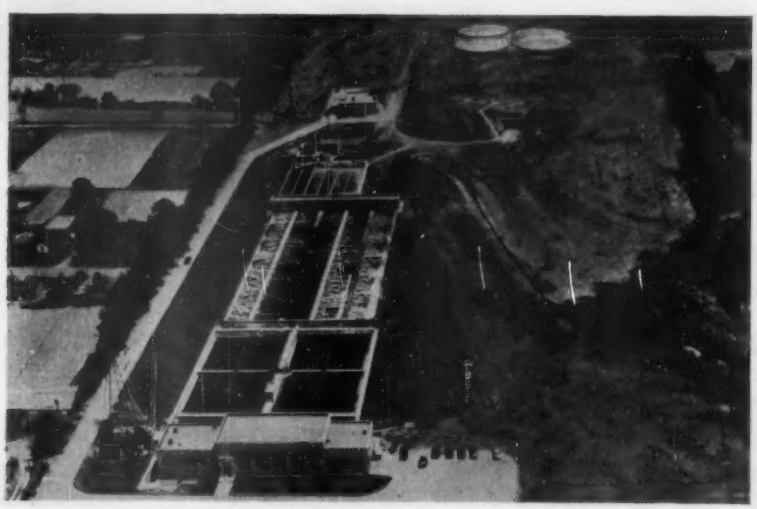
City Engineer Young and Public Improvements Director Comisiak (center) are on hand when the first power sewer-cleaning equipment to be used in Chester goes into action.

Activated Garbage Treatment

GARBAGE, ground in a central plant and mixed with the sewage, receives treatment in the sewage plant operated by Canton, Ohio. The plant provides purification by the activated sludge process. It is able to treat an average flow of 20,000,000 gallons daily and can receive a maximum that is 50% greater.

Treatment units, other than aeration tanks, consist of two 20-foot-square Detritors for grit removal, and four Squarex clarifiers for final settling. The sludge is delivered to 10 digesters, each 90 feet in diameter; six provide primary digestion and four, secondary. The Detritors, clarifiers, and digesters are products of the Dorr Company.

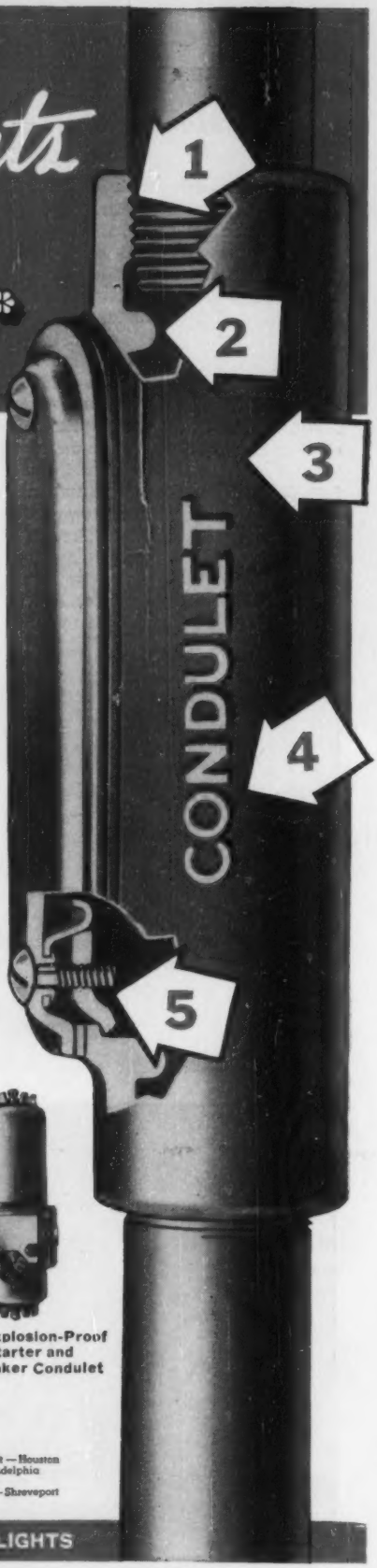
The plant was designed by Alvord, Burdick and Howson, Chicago consulting engineers, for this eastern Ohio community of 117,000. G. F. Johnson is superintendent of sewage treatment.



←

Garbage "gets the treatment" in this sewage-treatment plant operated by Canton.

In electrical installations *where QUALITY counts* use CONDULETS*



Quality does count in practically every electrical conduit installation that you make. When you use CONDULETS you know that you are putting in electrical equipment of the highest quality, because CONDULETS have been doubly tested . . . in the factory and in the field.

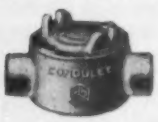
Crouse-Hinds quality control assures a long-lasting product and field records prove it by the test that only time can give. Thousands of CONDULET installations are still in tip-top condition after twenty, thirty, or even more than forty years of dependable service.

The illustration at the right shows four of Crouse-Hinds' basic quality features that are common to all CONDULETS. The fifth, Wedge Nut Fasteners, is an exclusive Crouse-Hinds feature that has made Obround CONDULETS preferred by electricians everywhere.

Type EVA Explosion-Proof Lighting Fixture

Type ARE Arktite Receptacle Equipment

Type FS Condulet With Pilot Lamp Receptacle, Switch and Plug Receptacle



Type GUAC Explosion-Proof Junction Condulet

1. **Taper tapping.** Condulet threads are taper tapped to match tapered conduit threading. Makes a rigid joint that will not loosen. This assures permanent ground continuity . . . important for safety.
2. **Integral bushing.** A smooth rounded surface protects wire insulation.
3. **Material.** Feraloy . . . a special alloy that is strong and tough, resists corrosion, and gives sharp, full threads
4. **Finish.** A triple treatment provides long-lasting protection . . . exceeds Federal and U. L. specifications.
5. **Wedge Nut cover fastener.** Clear cover opening . . . no projections. No loose parts . . . Wedge Nuts and screws self-retained. No screw holes to align.

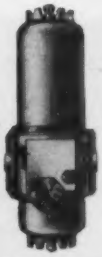
More than 15000 items are listed in the Condulet Catalog including a complete explosion-proof and dust-tight line for use in hazardous locations.

On your next job, use CONDULETS . . . they're made right to last longer.

**CONDULET is a coined word registered in the U. S. Patent Office. It designates a product made only by the Crouse-Hinds Company.*

Type VC Vaportight Industrial Lighting Fixture

Type FLF Explosion-Proof Manual Motor Starting Switch Condulet



Type EPC Explosion-Proof Motor Starter and Circuit Breaker Condulet

A Nationwide Distribution Through Electrical Wholesalers

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Parks & Playgrounds

Amateur Town Bands and Orchestras Becoming More Popular

AMATEUR COMMUNITY BANDS and orchestras are becoming more and more popular in municipalities throughout the United States. A recent issue of the *American Music Conference News* reports that there are now over 2,200 such musical groups in the country. Made up of housewives, businessmen, farmers, and others from every walk of life, these community orchestras are proving to be a relaxing and challenging recreation and an important cohesive force in municipalities.

Here are some examples of the diverse kinds of amateur orchestras that are rehearsing and playing today: Waverly, Iowa, boasts of its Wartburg Community Symphony Orchestra, led by Ernest Hagen, Music Director of Wartburg College. Iowans from 14 towns around Waverly are part of the orchestra. In Kiel, Wis., 40 musicians out of a total town population of only 2,129 meet twice a week to practice in their community band.

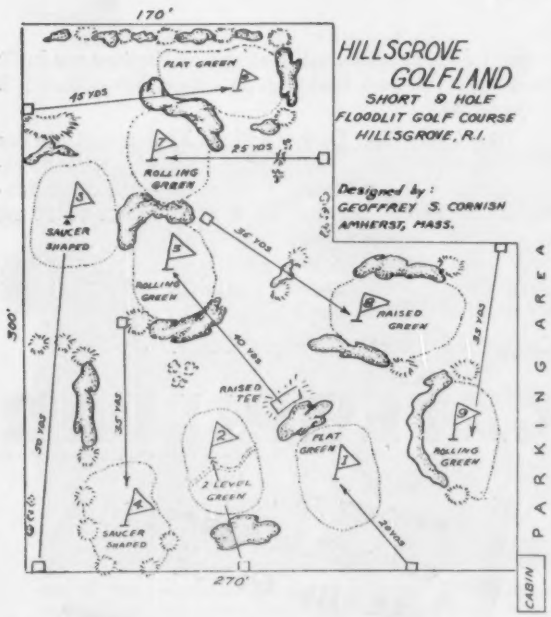
The Westchester County Symphony Orchestra draws musicians from all parts of this New York State county. With Milton Forstat as conductor, the symphony is one of the oldest community musical groups in this country. And in New York City at the Sirovitch Day Center, where elderly people from all over the city gather for companionship, there is an "Over-60 Symphony," consisting exclusively of members who are over three-score years old. Some of the members of this group are highly skilled musicians, while others had never played an instrument before.

Raising Funds for Recreation

THE Playground Advancement Committee, according to the attractive 1953 Berkley, Mich., report to its citizens, has contributed substantially to playground development and to recreation in that city. The Committee is composed of all service and civic organizations in Berkley, and in order to obtain funds for the development of playgrounds it has initiated special days (Buck Days and Berkley Days) any profits being used to further recreation. Friday, May 7, was a "Buck Day," dedicated to raising $2,500 for the last half of the tennis court. Part of the circular delivered by the postman to each home is reproduced herewith. The group raised $3,200 in this house-to-house canvas.

MIDDLETOWN, Ohio, seeks an experienced Parks and Recreation Director. Salary range: $420.76 to $509.34 a month. Apply to H. H. KRAMER, City Manager..

Short Golf—Something New for Community Recreation Centers

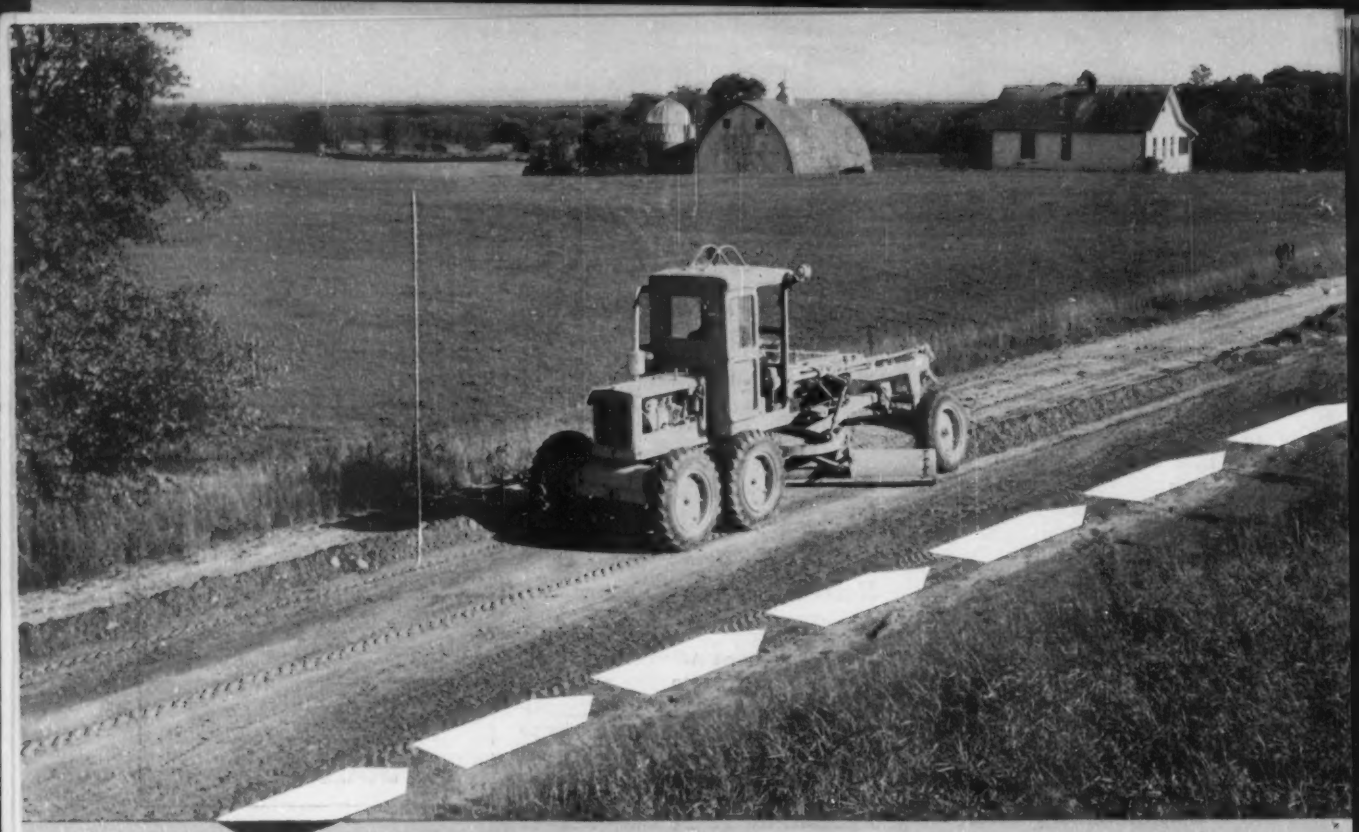


MINIATURE GOLFING, which reached its height during the late 1920's and early 1930's, is making a comeback on the new and larger "short golf courses" that are being developed in various areas of the country. An interesting article discussing this new trend appeared in the June issue of *Recreation*, published by the National Recreation Association. The article, titled "Short Golf for Community Recreation Centers," points out that challenging courses can be and have been laid out on sites ranging from 2½ to 13 acres. The accompanying sketch shows a typical layout and the yardages used for a short course.

The article notes that "short courses can become the 'sand lot' for golf, because playing on a crowded full-length 9- or 18-hole course without previous instruction and no one to help can be embarrassing and bewildering to many people. On the other hand, shorter distances give the beginner confidence."

The courses with their grass fairways, sand traps, and regulation putting greens can become important recreational facilities in parks in many communities or at summer resorts.

Further information about "Short Golf for Community Recreation Centers" can be obtained from *Recreation*, the Magazine of the Recreation Movement, 315 Fourth Ave., New York 10, N. Y.



LIFELINE: CAT* Motor Grader keeps it open at low cost

Rusk Township in Rusk County, Wisconsin, is an agricultural community of 500, isolated except for its unsurfaced "farm to market" roads. The region has many dairy farms, whose products must be delivered promptly. "Our entire road system and our contact with the outside world depend on our Cat No. 212," says Joe Scott, chairman of the Rusk Town Board. Here, according to Mr. Scott, is the record of this Caterpillar Motor Grader over the past five years:

"We must have reliable equipment, and our Cat Motor Grader has never let us down. It gave very fine service for 5200 hours. Then it was overhauled, and we expect the same fine performance again.

"We have many uses for our grader: plowing snow, working on culverts, removing rock, pulling stumps, bank sloping, ditching and so on."

Its main job is maintaining 37 miles of twisting, hilly roads. These are 22 feet wide, topped with pit-run gravel. Soil is sandy, rocky clay. Not the easiest material to work—yet this No. 212 blades the entire road system in 24 working hours!

The fast, reliable performance of this Caterpillar machine is saving money for its farmer-owners. Also saving them money is the low fuel consumption of its rugged diesel engine. All Caterpillar Engines are built to deliver full and foul-free power on low-cost No. 2 furnace oil.

Your Caterpillar Dealer will gladly demonstrate the positive, non-creep controls, unobstructed operator visibility, quick-change blade positioning—and other features that enable Caterpillar Motor Graders to do an outstanding job for communities all over the country. Call your dealer for an on-the-job demonstration, and count on him for dependable service.

Caterpillar Tractor Co., Peoria, Ill., U.S.A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

99% OF ALL CAT MOTOR GRADERS ARE STILL IN USE

Cinder-Cement Parking Lots

Although the materials were unorthodox, the methods of constructing the cinder-cement base were entirely conventional.

THE SOIL in a soil-cement base can be cinders and still give an excellent account of itself when used for surfacing of off-street parking areas. Robert Anderson, engineer for Winnetka, Ill., a Chicago suburban community of 12,000, discovered the value of this substitution when he broke with precedent by building the nation's first "cinder-cement" parking lots last year.

This choice of construction was dictated by the expectation of a light traffic burden on the surfaced area, and the desire to use the cinders already in place and thus avoid the expense of excavation and replacement with new material. The construction was done by contract at the attractive price of only $1.07 per square yard, complete with a 6-inch base and an asphalt seal coat.

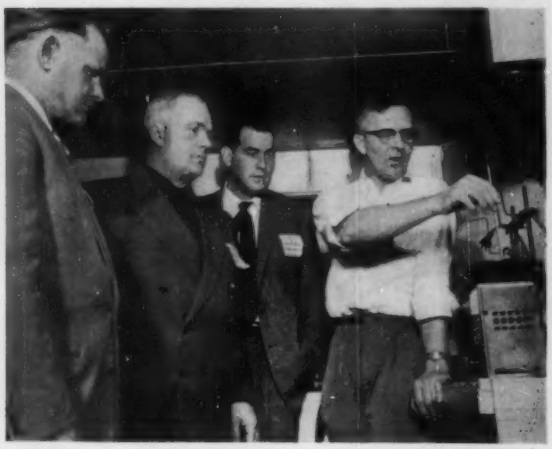
Surfacing followed well-established procedures. The contractor used a Seaman Pulvi-Mixer to process the cinders, in place, with about 8% cement. Then he compacted the base with sheep's-foot, pneumatic-tired, and steel-wheeled rollers, finishing up with a penetration asphalt and gravel surfacing. The result, Mr. Anderson reports, is a low-cost durable pavement requiring a minimum of maintenance, even in northern climates.

One of the parking lots is beside the Village Hall, and thus under constant scrutiny of local citizens. Although the material used for construction was unorthodox, its performance has met the requirements of a most exacting public.

One of the completed parking lots. It has a long-wearing, neat surface that meets the requirements of local citizens.

Nonskid Bituminous Pavement

A PASSENGER CAR traveling at 20 miles per hour can stop in approximately 16 feet on a properly designed, dry bituminous pavement, according to Professor A. H. Easton, director of the Motor Vehicle Research Laboratory at the University of Wisconsin.

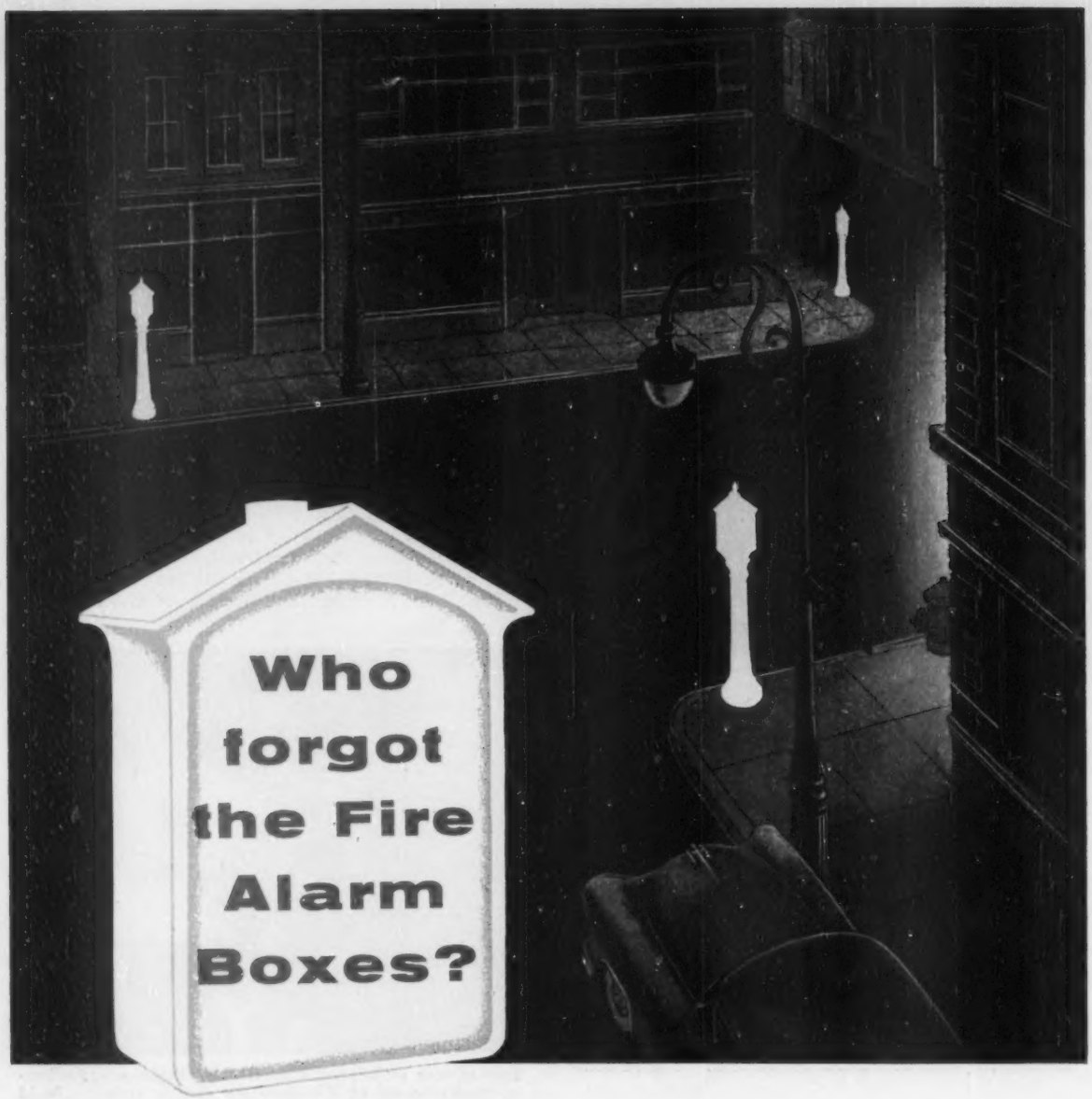


Inspecting an asphalt test at the Highway Engineering Institute of the University of Wisconsin are (left to right): Arnold Anderson, engineer for the Brown County Highway Commission; Earl Skagen, highway commissioner of St. Croix County, and Donald P. Zucker, engineer for the Village of Sherwood.

Tests conducted on dry, bituminous concrete, laid over portland cement, showed the average skid distance was 16 feet, while the distance on wet pavement averaged 20.5 feet. The car used was of medium weight and equipped with 7.60 by 15 tires. These distances, Professor Easton believes, are very encouraging because they reduce standard stopping distances which normally range from 17 to 22 feet on pavements that are dry.

Another bituminous surface that is effective for skid resistance is one with a "sandpaper" finish, Professor Easton noted. The sharp sand particles and crushed rock offer good resistance to skidding.

The process of laying a bituminous concrete wearing course to resurface concrete pavements has been used extensively in Wisconsin for repairing many of the state's major highways.



Of course your hydrant coverage is planned along with community growth.

And equally important for community safety is extension of the Fire Alarm Box System that makes it possible to use the hydrants *fast.*

The growing community today needs *complete* fire protection to safeguard its growth in the future.

GAMEWELL®

THE BOX IS POSITIVE

Reduces Human Error

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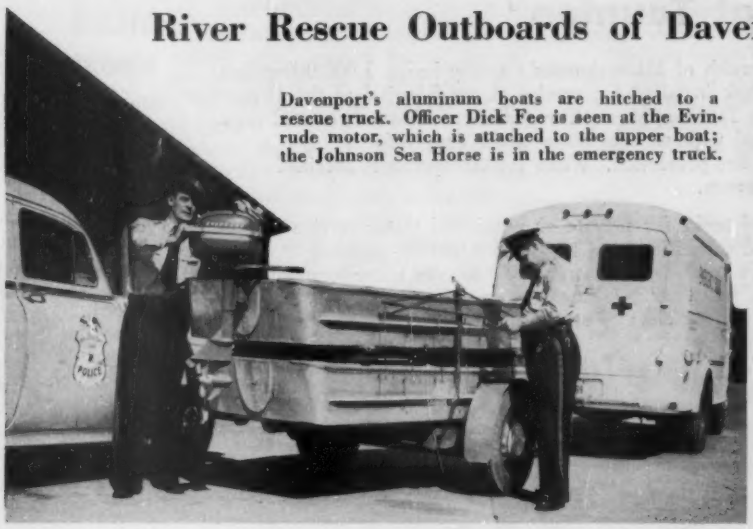
Public Safety

River Rescue Outboards of Davenport Police



Davenport's aluminum boats are hitched to a rescue truck. Officer Dick Fee is seen at the Evinrude motor, which is attached to the upper boat; the Johnson Sea Horse is in the emergency truck.

HERE are two views of rescue equipment. Our emergency truck has an International chassis and tows two aluminum boats used for rescue on the Mississippi River. As the pictures indicate, we use both Evinrude and Johnson outboard motors. These have proved completely able and reliable at slow speeds for dragging work and where power is needed in the swift current.

In addition, we have five station wagons that serve as squad cars for both patrol and emergency work. We also regard them as an item in civil defense. They carry Colapsi-Cot stretchers, breathing equipment and tools. Each of these cars has a trailer hitch for towing the boats.

HARVEY A. SMITH
Chief of Police
Davenport, Iowa

Livonia Fire Department Plans to Grow with the City

LIVONIA, MICH., is a rapidly expanding city, but our fire department is earnestly trying to keep pace with its development. Naturally, the recent General Motors fire has increased our citizens' "fire consciousness." It has made us more anxious to prevent such overwhelming waste, not only to protect our own community, but also to help reduce the over-all destruction by fire in the nation.

Our current apparatus includes four pumping engines, two Ford panel trucks with rescue tools and E & J resuscitator, and one Chief's car. Our most recent engines are American-LaFrance 1,000-gpm units; one a 1954 model, the other a 1952. We have a 1948 John Bean high-pressure fog fire fighter on an International chassis. This equipment carries a 430-gallon water tank and has mounted in front of the chassis a Barton 500-gpm pump. Our fourth engine is a 1942 General Detroit on a Dodge chassis.

Our City Council has agreed to check the possibility of securing matching funds to buy a 100-foot, all-metal aerial ladder truck. Not only do the heights of our present buildings demand such a truck, but our future factories and super markets will.

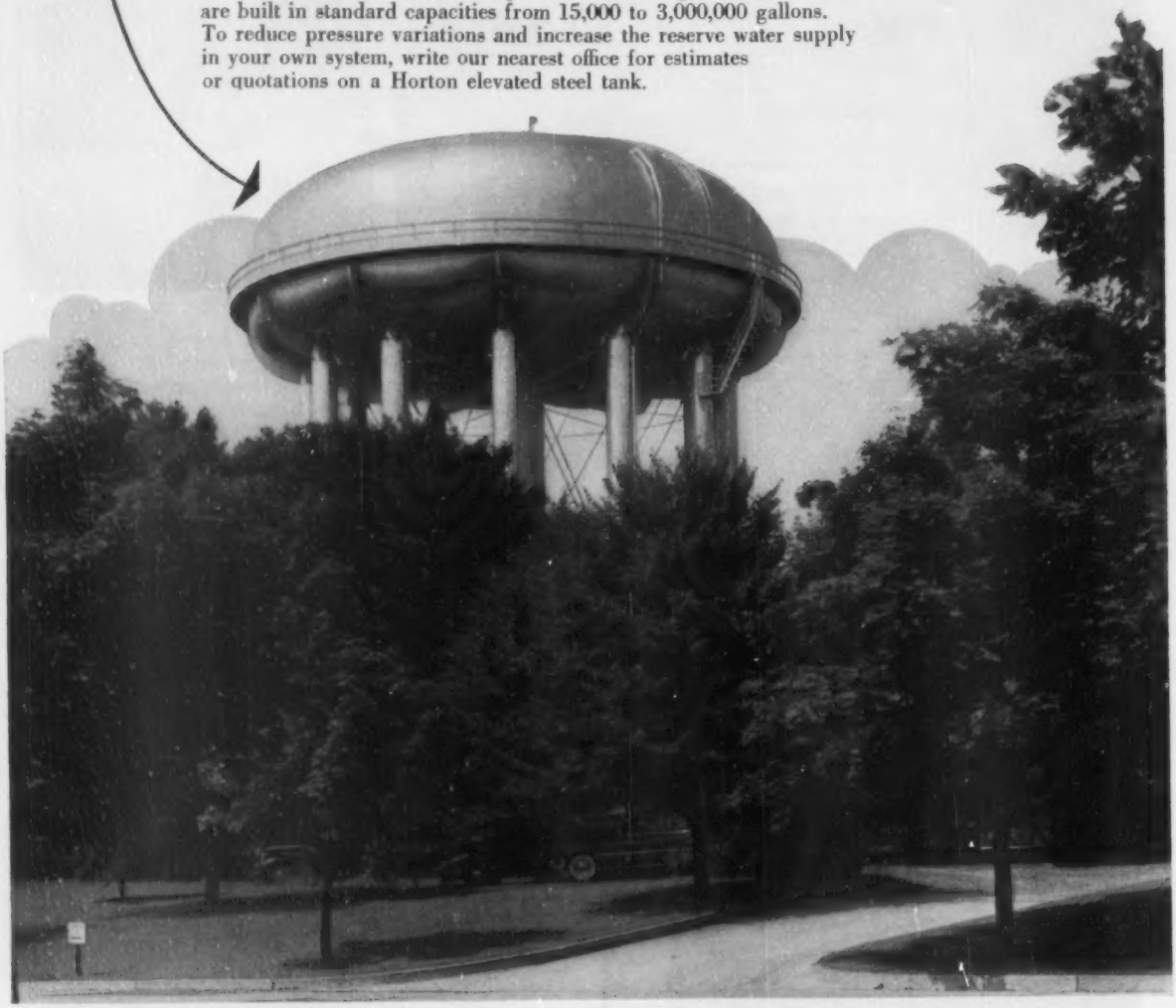
CALVIN ROBERTS, *Chief, Fire Department*
Livonia, Mich.

← Harry S. Wolfe, president of Livonia's City Council, and Fire Chief Roberts inspect the hose rack in the new $70,000 fire station, designed to house four major fire-fighting vehicles.

1,000,000-gallon
HORTON ELEVATED TANK
installed at Taunton

The Commonwealth of Massachusetts recently had a 1,000,000-gallon Horton® elevated tank installed for service at the hospital of the Department of Mental Health at Taunton, Mass. The radial-cone bottom elevated tank provides the hospital with an ever-ready water supply for domestic needs and fire protection. Water for the system is obtained from the city of Taunton.

Horton elevated tanks for private or municipal water service are built in standard capacities from 15,000 to 3,000,000 gallons. To reduce pressure variations and increase the reserve water supply in your own system, write our nearest office for estimates or quotations on a Horton elevated steel tank.



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Atlanta 3	2114 Healey Bldg.
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Chicago 4	2127 McCormick Bldg.
Cleveland 15	2236 Midland Bldg.
Detroit 26	1501 Lafayette Bldg.
Havana	402 Abreu Bldg.
Houston 2	2101 C & I Life Bldg.
Los Angeles 17	1503 General Petroleum Bldg.
New York 6	3300—165 Broadway Bldg.
Philadelphia 3	1616—1700 Walnut Street Bldg.
Pittsburgh 19	3202 Alcoa Bldg.
Salt Lake City 4	301 West 17th South St.
San Francisco 4	1333—200 Bush St.
Seattle 1	1301 Henry Bldg.
Tulsa 3	1625 Hunt Bldg.

Water - Works Conference Highlights

Record Attendance

AN UNPRECEDENTED NUMBER of the nation's water-works men attended the seventy-fourth annual conference of the American Water Works Association in Seattle, Wash., May 23 to 28. Registration totaled 2,065.

Dale L. Maffitt, general manager of the Des Moines (Iowa) Water Works, was elected president. He succeeds M. B. Cunningham, superintendent and engineer of the Oklahoma City (Okla.) Water Department. New vice-president is Frank C. Amsbary, Jr., vice-president and secretary of the Northern Illinois Water Corporation, Champaign, Ill.

The Association named three honorary members: Ben S. Morrow, engineer and general manager, Bureau of Water Works of Portland, Ore.; Samuel F. Newkirk, Jr., engineer and superintendent, Board of Water Commissioners, Elizabeth, N. J.; and Leonard N. Thompson, general manager and engineer of the St. Paul (Minn.) Water Department.

Awards include: the John M. Diven Memorial Medal to William J. Orchard, director of Wallace & Tiernan, Inc., Newark, N. J.; the John M. Goodell Prize to Michael J. Taras, research sanitary chemist, Department of Water Supply, Detroit, Mich., for his paper, "Effect of Free Residual Chlorination on Nitrogen Compounds in Water."

Watershed Logging a Cooperative Venture

IN THE GREAT lumbering areas of the Pacific Northwest, the control of logging on the watershed areas is the joint responsibility of the federal, state, and local governments. Properly administered, it permits the operation of a valuable industry without harm to the watershed area, according to a panel discussion of the Water Resources Division of the conference for which Roy W. Morse, superintendent of the Seattle Water Department, served as moderator.

This policy was illustrated with reference to specific cities:

Medford, Ore., gets its supply from springs that are fed by a large catchment area having no surface drainage. The city has turned the management of its watershed over to the U. S. Forest Service under a 10-year contract which assigns the Service four important responsibilities: inventory of forest products on the watershed; development of a 10-year program of timber sales, planting, and tree pruning; appraisal of timber and recommendation of portions for sale; and supervision of harvesting and disposal of slash.

Medford has only limited ownership of the area and no qualified personnel to do the work. The watershed has ponderosa pine and Douglas fir as old and second growth.

Bremerton, Wash., owns most of its 8,000-acre watershed outright. The timber is chiefly second-growth Douglas fir. Some loggers operate in the watershed on a sustained-yield program. According to their current contract with the city, the loggers must cut the timber, prepare a forest inventory, build access roads which serve as fire trails, plant trees, and develop a long-range cutting and reforestation plan.

The city receives 25% of the selling price of the logs. For the past four years, the loggers have removed 900,000 board-feet per year, providing the city with a revenue of $15 per 1,000 board-feet. Eventually, the loggers should be able to remove five or six times this quantity.

Portland, Ore., does not allow the cutting of timber or any recreational activity on the city's 65,000-acre Bull Run watershed. The U. S. Forest Service and the city jointly provide fire protection. Part of the watershed is in the Mount Hood National Forest. The timber is largely Douglas fir.

Tacoma, Wash., also depends upon the U. S. Forest Service to help police its Green River watershed. Two private operators currently conduct work on the watershed, using "tree farming" methods. In the past, fires have ravaged the watershed, but reforestation is correcting the damage.

The U. S. Geological Survey also is cooperating with control measures by conducting turbidity surveys to secure information about the removal of vegetation.

Seattle, Wash., owning 65,846 acres of its 91,500-acre watershed, has managed its watershed forest under a definite plan since 1924, employing a forester and forestry crew as part of the water-department force. Timber cutting is accomplished by a long-term logging contract with private timber owners, and is limited to the sustained annual yield capacity of the watershed of 35,000,000 board-feet. Reforestation of the cut-over lands has been accomplished principally by natural means, but supplemented by some tree planting. The city provides fire protection for its lands and also closely cooperates with the U. S. Forest Service and the Washington State Division of Forestry. Revenues from the sale of city timber have been nearly sufficient to cover the entire cost of the watershed.

Vancouver, B. C., has three watersheds of which only one is partly logged. Since 1926, the city has permitted no logging on any watershed, except to clear reservoir sites and prepare fire breaks. However, the city is currently engaged in a survey of forest resources in anticipation of a possible change of policy.

Snow Surveys and Full Reservoirs

SNOW SURVEYS, with a sufficient length of record, properly conducted and analyzed, should predict within 10% the snowmelt runoff yielded by a watershed, reported Fred A. Strauss, senior hydraulic engineer, California Water Resources Division, to the conference's Water Resources Division. The surveys have become so valuable that banks and investment houses use them. They permit generation of hydroelectric power for long periods; more orderly water conservation; variation in crop planting, based on the amount of irrigation water available; and safer flood-control methods.

Present snow-survey work in California is a coopera-

On Main Street, or in the wild upper peninsula, you need the "Big 3"

There's a big copper refining plant on the shores of Lake Superior, near Ontonagon, Michigan.

They use a lot of water.

They wanted a *trouble-free* water line . . . one that would be as *nearly ageless* as man could devise . . . one with *great strength* to resist earth loadings . . . one with *sustained high capacity.*

These "Big 3" requirements were important to the White Pine Mining Company—so they specified Price Prestressed Pipe for a new 25,000 foot line of 36-inch pipe.

The same "Big 3" requirements were recognized by Miami, Louisville, Cleveland and many other cities large and small. Now they use Price Pipe.

You, too, need a pipe line that meets *all* 3 of the "Big 3"... *long life, great strength* and *sustained capacity.* Don't be satisfied with less.

Before you specify your new water supply line, call in our engineers. They'll show you how to get a trouble-free line of ageless concrete at the lowest possible cost.

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Concrete Pressure Pipe for Water Supply, Subaqueous, Pressure Sewer and Culvert Installations

tive undertaking involving federal, state, and municipal governments, utility and irrigation districts, power companies, and private land and canal companies. A total of 38 separate organizations and a staff of 150 men participate in the survey of 275 snow courses on 31 watersheds. The state contributes one-half of the annual $60,000 cost and the cooperating organizations, the remainder.

The surveys are used to forecast April-to-July streamflow. The snow measurements are evaluated by graphs that show April-to-July unimpaired runoff in the past; with the index of the snow pack; with the index of precipitation from July 1 to March 31 to determine soil priming prior to the runoff period; with the index of precipitation during April and May to determine the amount during the runoff period; and with the previous season's runoff volume.

The survey forecasts are refined to close tolerances, where necessary, by considering (1) precipitation during two years prior to April 1 snow measurements as an index of ground-water contribution; (2) the unimpaired flow of the river during any selected winter month as an index of the contribution from percolating water; or (3) the measurement of seasonable precipitation prior to the date that the snow first starts to accumulate as an additional index of soil priming.

Radioactive cobalt promises to supplement snow surveys, particularly in inaccessible areas. The surveyors place the cobalt in a cylinder on the ground during snow-free months. The water content of the snow blanket diminishes the impulses so that the depth can be measured by a Geiger-Muller tube which, in turn, is connected to a radio so that the report can be received at a base station. However, this method is relatively new and much remains to be done, Mr. Strauss said.

Metropolitan District Management

REGIONAL-METROPOLITAN water systems, independent of political boundaries, are the most efficient way of extending water services to short areas, according to a panel discussion of the Water Works Management Division. Dr. Abel Wolman, professor of sanitary engineering, of Johns Hopkins University, served as moderator.

Several regional-metropolitan water districts were cited during the discussion:

Metropolitan Water District of Southern California embraces cities, municipal water districts, and county water authorities. It has the power of eminent domain, can sue or be sued, acquire or dispose of property, may levy taxes, set rates, and issue bonds for the construction of new facilities.

The board members who govern the district are appointed by the chief executive of each municipality or organization embraced by the district, and hold office at the pleasure of the appointing power. They receive no remuneration other than expense money. Each unit has one director and an additional director for each $300,000 in assessable property.

Washington (D. C.) Suburban Sanitary District has three commissioners, one appointed by the Governor of Maryland, and one each by the Board of County Commissioners of the District. The District provides water supply, sewerage, and refuse-disposal service. It has been empowered with the rights of eminent domain: it may assess property abutting mains on a front-foot basis; set service charges and water-meter rates; and declare *ad valorem* taxes. The law restricts its power to issue bonds to 14% of the assessable value of property in the District. However, the Boards of County Commissioners back the bonds.

East Bay Municipal (Oakland, Calif.,) District is separate from local or county governments. The five directors are popularly elected for a four-year term and receive $10 per meeting. The District originally developed water supplies only but has extended its control to distribution systems, also.

Illinois law forces Chicago to assume responsibility for water supply in its suburban area and demands that it do so at no extra cost. Many suburbs take advantage of this unfair arrangement and resell the water at a substantial profit. The law does not permit a demand charge which has often produced unfair and costly problems for Chicago.

Water Distribution Standards

WHAT CONSTITUTES good water distribution was spelled out clearly by the Subcommittee of the National Association of Railroad and Utility Commissions. The most important point is the need for relatively constant pressures in distribution systems. When a water utility sets a pressure standard, the range of variation should not exceed more than 50% of the standard. For example, if the system has been designed for 80 psi (pounds per square inch), 40 psi should be the extent of the variation, permitting a high of 100 psi and a low of 60 psi.

Water utilities must also adopt a uniform policy on service extensions, based on a prudent investment that considers the probable income that the extension will bring. Another standard concerns the right of water utilities to connect only to sanitary plumbing systems and the distribution of all water through meters, except for temporary fire services, street sprinkling, and sewer flushing.

Plastic Pipe Gets Better

THE National Sanitation Foundation Testing Laboratory, at the University of Michigan, put 23 samples of plastic pipe through a series of tests and came up with some encouraging facts for the water-works field.

Of the samples tested, four were polyethylene with a specific gravity of 0.91; seven were polyvinyl chloride, including Saran, with a specific gravity of 1.40; three were cellulose acetate butyrate with a specific gravity of 1.16; and nine were rubber-modified polystyrene with a specific gravity of 1.05. The investigators used Ann Arbor water that is treated by rapid sand filters, is chlorinated and fluoridated. They reduced the pH of the water to 5.0 to increase its aggressive characteristics.

The tests disclosed that the water extracted no objectionable substances from any pipe submitted by manufacturers who recommended its use for potable water. Samples buried in acid soil for one year showed slight color changes and minor film formation, less than occurs in copper tubing or galvanized steel pipe.

Pipe submerged partially in the aggressive water showed little, if any, effect. The test water had no identifiable taste or odor after long exposure. Taste and odor problems occurred only in systems using a volatile solvent to joint the fittings and may be overcome by forcing air through the system.

The pipe showed no retention of *E. coli* even after

(*Continued on page* 129)

Our Municipal Notebook

Douglas S. Powell Joins The American City Staff

DOUGLAS S. POWELL, has resigned as resident planner for the municipalities of Rye, N. Y., and New Canaan, Conn., to join the staff of THE AMERICAN CITY as its new Associate Editor.

Mr. Powell brings a varied municipal and civic background to the magazine, holding a master's degree in City Planning from the Massachusetts Institute of Technology, and a B.E. in Civil Engineering from Yale University. Mr. Powell joined the planning consultant firm of Adams, Howard & Greeley in 1950, and since that time has served as resident planner for the two municipalities mentioned. Previously, he had been on the staff of McHugh & McCrosky, City and Regional Development Consultants. During 1953 he also served as secretary of the New York–Philadelphia chapter of the American Institute of Planners.

Eric Carlson Leaves for United Nations Assignment

ERIC CARLSON, Associate Editor of THE AMERICAN CITY since August 1946, has accepted a two-year appointment from the Technical Assistance Administration of the United Nations to establish a program in community planning and development at the new Central American advanced school of public administration in San Jose, Costa Rica. The school, supported by the countries in the region, is primarily designed to meet the needs of selected government officials and personnel.

Mr. Carlson, who undertook a somewhat similar six-month assignment from the United Nations in Brazil in 1953 while on leave from THE AMERICAN CITY, has participated in numerous municipal and civic organizations and conferences during his service as Associate Editor. He has been the co-founder and secretary-treasurer since their inception of both the Government Public Relations Association in Chicago and the Foundation for Cooperative Housing in New York City, as well as co-founder and first chairman of the New York Metropolitan Committee for Planning. He has been secretary of the Regional Development Council of America; vice-president of the New York-Philadelphia chapter, American Institute of Planners; member, executive committee, Civil Defense Research Associates; member, planning board, Woodcliff Lake, N. J.; United Nations consultant on cooperative housing; member, Board of Directors, Citizens Housing and Planning Council of New York, and member, Committee on Housing, Community Services Society, among other activities.

"A good city plan costs more to disregard than to carry out."

"The city that refuses to pay the cost of planning must pay the greater cost of lack of planning."

"Minimizing of travel time should be a major objective of city planning."

Three slogans that have been found helpful in presenting the case for sound urban development.

Model Ordinances on Zoning and City Income Taxes

THE National Institute of Municipal Law Officers has released in pamphlet form model ordinances on zoning and city income taxes previously published as a part of the NIMLO Model Ordinance Service.* Each ordinance contains the authorities upon which it is based; each was reviewed in advance by experts in that particular field; and each is based upon ordinances already adopted and upon experience under those ordinances.

The ordinances cost $2 each and may be secured from NIMLO, 726 Jackson Pl. NW., Washington 6, D. C.

* The NIMLO Model Ordinance Service was begun in 1952 in order to provide busy municipal attorneys with a comprehensive code of ordinances on every phase of municipal regulations. New ordinances are constantly being added and others revised to reflect current needs, and at present the Service includes some 50 models on such fields as government organization, purchases, contracts and sales, revenue and taxation, licenses and permits, businesses and occupations, amusements and recreation, morals and conduct, health, safety and sanitation, vehicles, traffic, airplanes, streets and parkways, zoning and planning, buildings and signs, water, light, and power.

National Anti-Litter Organization Formed

KEEP AMERICA BEAUTIFUL, Inc., a new national organization has adopted an aggressive program to eliminate the growing nationwide problems of roadside litter. This nonprofit corporation is financed by industry and is supported by such civic bodies as the Chamber of Commerce of the United States, National Council of State Garden Clubs, Boy Scouts of America, and General Federation of Women's Clubs.

Speaking as Chairman of the Keep America Beautiful management committee, Edward K. Walsh of the American Can Co., said at the organization meeting in May that the litter problem is "far more extensive, more costly, and more complex than most people realize—including ourselves. It is also evident that the many independent, local campaigns against litter can be productive of greater results if they are coordinated in a program with national scope."

The program of the new group stresses a nationwide education campaign to awaken the public to the seriousness of litter along highways. The program also seeks more immediate improvement of trash conditions by strengthening anti-trash laws in areas where they are now weak and by encouraging enforcement, including fines, against deliberate or repeat offenders.

In adopting an education campaign as a major element of its future efforts, Keep America Beautiful, Inc., cites the experience of the Scandinavian countries and Holland, where educational programs over a period of 20 years have resulted in a virtual elimination of the litter problem in those countries.

A five-month study undertaken by the new anti-trash group has shown that the total annual cost of picking up litter in the United States is in excess of $30,000,000—not including the cost of regular garbage and trash collection within incorporated towns and cities. Further information about Keep America Beautiful, Inc., can be obtained at its office at 100 Park Ave., New York, N. Y.

LOOKING FOR A SLOW, STEADY SOURCE OF CHLORINE?

USE HTH TABLETS

The unique properties of HTH Tablets make them the ideal chlorine carrier for many applications. When added to water, the HTH Tablets go to work immediately, but instead of creating a momentary high chlorine residual which may be rapidly dissipated, they provide a steady supply of available chlorine over a long period. Thus, they are most practical and economical where a chlorine residual must be maintained.

Currently, HTH Tablets are finding application in the following important sanitation jobs:

- Sanitizing newly laid pipe lines and new wells.
- Destroying algae; controlling bacterial growth in spray ponds, reservoirs, basins, etc.
- Disinfecting swimming pool water.
- As a sanitizing agent and algaecide for use in sand filters.
- Destroying offensive odors originating in stagnant ponds, ditches, etc., especially those subject to seepage from septic tanks.
- Preventing the breeding of mosquitoes, flies and other insects.
- Miscellaneous sanitation, deodorization and similar uses.
- Sewage disposal plants—disinfecting of effluents, odor control, B.O.D. reduction.

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Containing not less than 70% available chlorine, HTH Tablets are easy to use and completely safe. They are packed in 100-lb. metal drums and convenient cases of nine 7½-lb. cans.

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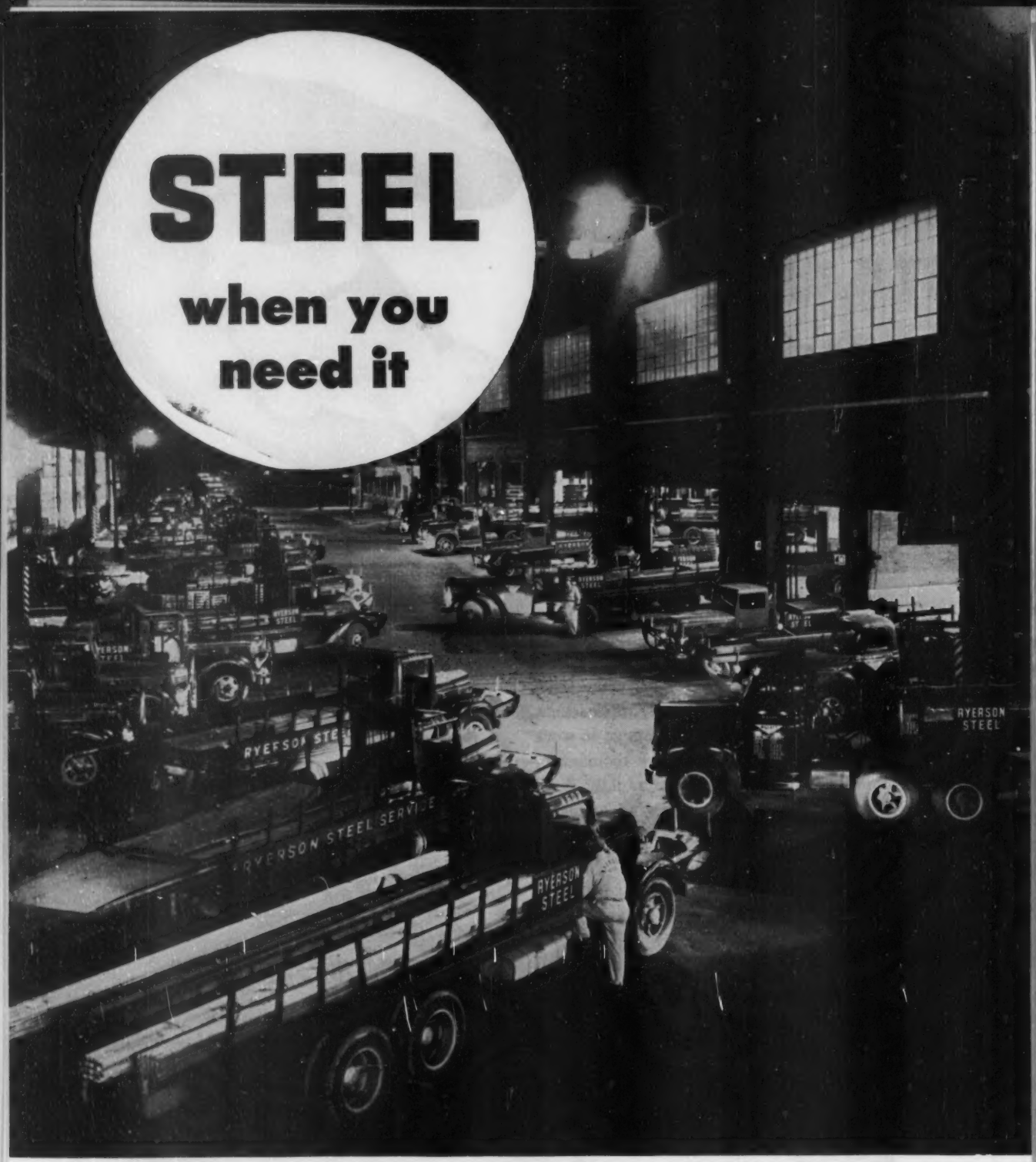
HTH TABLET HYPOCHLORINATION

Write for full information on this efficient new chlorination method.



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Legal Access to Public Records

THE extent to which so-called public records shall be open to public inspection, in the interest of better municipal administration, has long been a subject of considerable controversy. The legal contemplation, if a record is public, is that it is and should be open to inspection during reasonable business hours. The difficulty arises when the record has elements of a nonpublic character, even though it is bought with taxpayers' funds. In at least one case, a municipality procured data from private employers, upon a pledge not to divulge it, for the purpose of measuring the compensation of municipal employees. In a subsequent action, the employees sought inspection of this data. The highest court of California has held that the material took on a confidential character in view of the pledge made at the time it was received, and that disclosure would, therefore, be denied.*

In the assessment process, similarly, the courts sometimes recognize the data compiled by an assessor as his "work product" and exempted this data from the rule of public inspection. An effort was made to extend this exemption to reappraisal cards made by outside appraisers pursuant to contract at public expense. The court held that these cards are not public records, but neither are they the "work product" of the assessor, and inspection was allowed to enable the preparation of a tax appeal against the assessment district.† The entire subject has been reexamined in a worthy work, published under the sponsorship of the American Society of Newspaper Editors.‡

* San Francisco v. Superior Court of San Francisco, 38 Cal. (2d) 156, 238, P. 2d 581 (1951).

† Tagliabue v. North Bergen Township, 9, N. J. 32, 86A (2d) 773 (1952).

‡ Harold Cross, *The People's Right to Know: Legal Access to Public Records and Proceedings* (New York: Columbia University Press, 1953).

From chapter on Local Government, by William Miller, in the Annual Survey of American Law, published in the New York University *Law Review* for February 1954.

Dental Insurance Available To New York Area Groups

THE FIRST COMMUNITY-WIDE plan for voluntary dental insurance in the United States is now available to groups of municipal employees in the New York Metropolitan Area. It is offered by a nonprofit New York Corporation, Group Health Dental Insurance, Inc.

The GHDI Plan offers coverage providing benefits for practically all dental services for the maintenance of dental health year in and year out.

Group Health Dental Insurance is the sister corporation to Group Health Insurance, Incorporated, a pioneer nonprofit company that provides insurance for medical and surgical care to groups in the Metropolitan Area. Through both of these organizations, it is now possible for the first time, for a group of employed people to subscribe to a complete package of health and welfare insurance.

Municipalities interested in the new dental plan should contact Group Health Dental Insurance, Inc., 120 Wall St., New York 5, N. Y.

Patrick Healy, Jr., Succeeds Carl H. Chatters As Executive Director, AMA

Patrick Healy, Jr.

Carl H. Chatters

EFFECTIVE JULY 1, Patrick Healy, Jr., becomes Executive Director of the American Municipal Association, succeeding Carl H. Chatters, resigned.

Mr. Healy, 44 years of age, is a graduate of Amherst College and of the Graduate School of Citizenship and Public Affairs at Syracuse University. In March 1934, he became the first Executive Secretary of the North Carolina League of Municipalities, where he served until he entered the Navy in April 1942. He was discharged as a Lieutenant Commander, in January 1946, and promoted to Commander, U. S. Naval Reserve, on July 1, 1950. He has served for one year as field consultant of the League of Virginia Municipalities, and prior to assuming his new position with the AMA he had been Chairman of the Utah State Tax Commission.

Mr. Chatters' career has included work in the City Engineer's office in Flint, Mich., during summers while he was in college. After graduating from Kalamazoo College, he returned to Flint. In two years he became City Auditor of that city, and later Director of Finance. In 1931 he went to Detroit as the first Director of the Municipal Advisory Council of Michigan. In 1932 he became Executive Director of the Municipal Finance Officers Association, leaving this position in 1946 to become Chief of the Public Finance Branch of the Office of Military Government for Germany. At the request of the Port of New York Authority he returned to the United States to serve as Comptroller of that Authority. He has been executive Director of the American Municipal Association since 1948.

In the future, Mr. Chatters expects to work as a municipal consultant primarily concerned with problems of municipal finance.

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To obtain any of the following catalogs, write directly to the manufacturers. If you prefer, you may circle the identifying numbers on this coupon and mail to THE AMERICAN CITY, *470 Fourth Avenue, New York 16, New York, or use the colored Post Card at page 214.* 7/54

67	73	79	85	91	97	103	109	115	121	127
68	74	80	86	92	98	104	110	116	122	128
69	75	81	87	93	99	105	111	117	123	129
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What Good Street Lighting Can do for Your Town

67 In addition to the reugiar requirements of street lighting, there are other locations demanding special knowledge and treatment. These include park facilities used at night, boardwalks, wide streets, and intersections. Mercury-vapor lamps are increasingly selected for providing economical lighting at all of these locations because they deliver more lumens per watt than do incandescents, thus, more light for the same power consumption. For practical answers to your city's street-lighting problems, write the WESTINGHOUSE ELECTRIC CORP., P. O. BOX 868, PITTSBURGH 30, PA.

Sweeps Streets Cleaner In Less Time

68 A unit that sweeps and sprays streets and airports, and carries a full load of trash directly to the dump, is offered by MOBIL-SWEEPER, DIV. of THE CONVEYOR CO., 3260 E. SLAUSON AVE., LOS ANGELES, 58 CALIF., AC-01. Operated by one man, the Mobil-Sweeper will sweep deep, wide gutters, sharp curb returns, and steep hills. It features right and left gutter brooms that sweep dirt and other trash into the path of a full-floating pickup broom.

Improved Tractor Shovel

69 A new torque converter drive has been added to the 1½-yard Model HM "Payloader" tractor shovel, increasing the unit's output and decreasing maintenance cost. The drive permits the engine to operate at efficient speeds, eliminating a large amount of gear-shifting and "clutching." Combined with a 4-speed, full-reversing transmission, it provides a wide range of automatically selected speeds. Write THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

Ball Valves

70 *Bulletin 159*, a new 8-page brochure from the S. MORGAN SMITH CO., YORK, PA., discusses the company's line of manually operated ball valves for water works, and includes valve characteristics, sectional assembly drawings, and descriptions of standard settings. These valves are offered in 12- to 48-inch sizes for shut-off service at pressures up to 150 psi.

Instructions for Repairing Pipe Leaks

71 Step-by-step instructions for repairing all types of steel and cast iron pipe leaks, complete with installation pictures and captions, are contained in the new and attractive *Catalog GW* of the M. B. SKINNER CO., SOUTH BEND 21, IND. The new catalog and service manual offers detailed drawings of a full line of pipe repair clamps, service fittings, and drilling equipment. New products for water works include a coupling saddle and a new wall service fitting.

Concrete Lighting Standards

72 Some 123 Spun-Crete Hy-Lite lighting standards were installed on Atlantic City's Boardwalk recently, in conjunction with the city's Centennial Celebration. These standards were designed to resist rot and rust, and are immune to changing temperatures and salt-water corrosion. Combined with fluorescent-mercury units mounted on concrete brackets, they offer dependable, low-cost street lighting. Write the AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL.

Leaf and Litter Collector

73 Designed with "Tornado Power," the Good Roads leaf collector cleans leaves, litter, and debris from streets, roads, parks, and picnic grounds without sweeping. Only two men are needed to do a thorough clean-up job. One man operates the truck or tractor, while the other handles the suction tube. The leaves are pulverized and deposited in a 14 cubic yard hopper. Write GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

Gang Lawn Mowers

74 You can improve the appearance of parks, playgrounds, and airport runways and, at the same time, cut maintenance costs, by using a Sunflower gang lawn mower. Made by SUNFLOWER INDUSTRIES, INC., 103 S. KANSAS AVE., OLATHE, KANS., there is a gang lawn mower for every type tractor. Also offered by this company are rotary cutters for all tractors, and the new Kub-Klipper for cutting, mowing, and shredding grass.

Screen Your Own Traffic Signs

75 Cities can save money by screening their own traffic signs. Standard traffic blanks are available in all types of steel and aluminum, flat or embossed. Steel blanks in a variety of gauges are furnished plain, bonderized, finished with two coats of baked enamel, or reflectorized. You can get aluminum blanks plain, alodized for painting, or treated for reflective sheeting application. Write NATIONAL SAFETY ENGINEERS, INC., P. O. BOX 1069, BIRMINGHAM, ALA.

Economical Sewer Cleaning

76 An increasing number of municipalities are discovering that the most practical way to clean sewer pipe is to rent rather than buy the costly equipment. The NATIONAL POWER RODDING CORP., DEPT. A, 4600 W. MADISON ST., CHICAGO 44, ILL., can furnish your city with highly trained crews and up-to-date machinery for fast, efficient pipe and sewer cleaning. Clogged and partially clogged lines will be cleaned in less time and at low cost. The new booklet, *Now Rebore*, will be furnished on request.

Stops Corrosion In Water Pipelines

77 Costly water-line leaks, caused by corrosive soil conditions, are easily avoided with An-Spec magnesium anodes. Magnesium anodes will stop corrosion on all of your underground or submerged metal structures. They are available, along with experienced installation crews, from the PIPELINE ANODE CORP., 25th W. AVE., and SAND SPRINGS RD., TULSA, OKLA.

An Outstanding Valve Catalog

78 Water-works valves, automatic and hydraulic, including altitude valves, float valves, needle valves, relief valves, and others, are described and illustrated in this comprehensive new catalog. Also discussed are portable fire hydrants, hydraulic booster pumps, strainers, and additional specialties. The catalog specifies the pressure adjustments and capacities of each valve, its dimensions, and a complete parts list. For your copy of *Catalog No. 54*, write ROSS VALVE MFG. CO., INC., TROY, N. Y.

(Please turn to page 25 for more Bulletins)

Two SURE FIRE Ways to Please Taxpayers

Good Roads LEAF COLLECTOR Good Roads SCAVENGER

For *Most Efficient* Leaf Collection and Rubbish Clean-Up

No need for your constituents to complain about dirty streets or messy accumulations of leaves or other debris on roadways, sidewalks, parks or other public grounds. The two units illustrated are designed specifically to keep these areas clean—and to do it quickly, economically, efficiently.

LEAF AND LITTER COLLECTOR

The Good Roads Leaf Collector with "Tornado power" cleans up leaves, litter and debris like magic. Wet or dry, loose or compact, makes no difference. It reaches around and under parked cars and any other hard-to-get-at places—no sweeping, no dirt, no mess. Only two men—one driving the truck or tractor and one handling the suction tube—can do as much work in a day as ten or more with other equipment. Leaves are pulverized and deposited in the 14 cu. yd. hopper. The compacted "packaged compost" is readily dumped by hydraulic action wherever fertilization is desired.

MOTORIZED SCAVENGER

The Goods Roads Scavenger works like a giant heavy-duty vacuum cleaner—picking up all kinds of debris and rubbish on roadways, parks, picnic and recreation gounds, golf courses, cemeteries, etc. Bottles, cans, papers, rags, cartons, leaves, twigs—wet or dry and almost regardless of size and weight—are whisked into the 12 cu. yd. hopper with ease. When filled, the hopper can be quickly emptied by its own hydraulic self-dumping mechanism. The operator rides in a comfortable seat to direct the suction tube. Convenient push-button buzzer signals the tractor or truck driver.

Don't wait for "Clean-up Week." Keep your public areas clean and your taxpayers happy at all times with Good Roads Leaf Collector and Scavenger. Write for complete information to GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

SNOW PLOWS

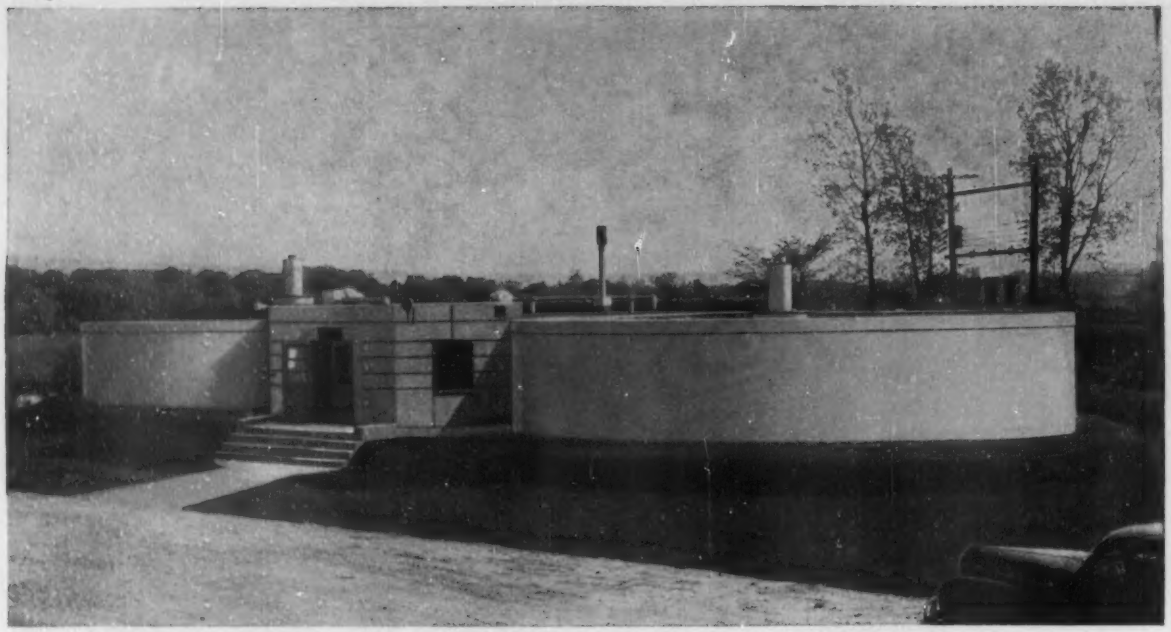
ICE CONTROL SPREADERS

ESTABLISHED 1878
Good Roads MACHINERY CORPORATION

AGGREGATE SPREADER

LEAF COLLECTOR

SCAVENGER



At Fremont, Ohio . . .

Digestion is simplified and improved

WITH P. F. T. FLOATING COVERS

Serving a population of 20,000, Fremont's modern plant is designed for "Controlled Digestion" with two 45′ P.F.T. Floating Covers.

Plant procedures are *simplified* because additions and withdrawals can be made at times best suited to the overall operation. As sludge or digestor liquor is removed, the floating covers simply lower—equal volumes of liquid need not be added to maintain a fixed level. As sludge solids are added, the covers raise—equal amounts of digestor liquor need not be withdrawn. In this way, additions and withdrawals can be made *independently* at the operator's convenience.

P.F.T. Floating Covers also reduce costly breakdowns and repairs by eliminating all moving parts inside the digestor. Since no mechanical agitation is required, and heat is supplied from *external* heaters, all cleaning and maintenance operations take place *outside* the tank.

In addition, explosion hazards are greatly reduced because gas collected under the cover can escape only at the desired point. Even during additions and withdrawals, a constant pressure is maintained which prevents the entrance of atmospheric oxygen.

Both Floating Covers at Fremont contain a P.F.T. Supernatant Liquor Selector for automatic, continuous withdrawal of the best digestor liquor available. Additional P.F.T. equipment—housed in the convenient chamber between the tanks—includes: 2 Heater and Heat Exchanger Units (100,000 b.t.u. per hr.); 2 Supernatant Gauges; Gas Safety Equipment.

Complete information on request — Write for Bulletin 332.

Design of plant by / *Rollin F. MacDowell & Associates, Cleveland, Ohio*

P.F.T.

waste treatment equipment exclusively since 1893

PACIFIC FLUSH TANK CO.
4241 Ravenswood Avenue
Chicago 13, Illinois

NEW YORK • LOS ANGELES • SAN FRANCISCO • CHARLOTTE, N. C. • JACKSONVILLE • DENVER

Obtain this Literature Free of Charge!

Write directly to the manufacturers or use the coupon on page 22

Concrete Pressure Pipe

79 The advantages of using concrete pressure pipe for your water transmission and distribution lines are fully explained in *The Story of Concrete Pressure Pipe*, an interesting new booklet from PRICE BROTHERS CO., 1823 E. MONUMENT AVE., DAYTON 1, OHIO. Particular attention is given to prestressed concrete steel-cylinder pipe, molded with a thick core of concrete and steel, around which a high-tensile steel wire is wrapped under tension. This pipe is completely protected by a coating of rich cement mortar, and provides a dependable, long-lasting concrete water line.

Digs Deep Trenches Quickly

80 A new wrist-action dipper has been added to the Bucyrus-Erie Hydrohoe, providing the unit with greater power and the ability to get bigger loads with less spillage. The operator of the Hydrohoe can vary the position of the dipper so that its teeth bite into the ground at the best digging angle, and can rotate the unit past the stationary door for the automatic ejection of sticky materials. Available in 12- and 18-inch widths, the new dipper facilitates the digging of vertical walls or short, deep trenches. It is described in literature from BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS.

Lifts, Loads, and Dumps Materials

81 Equipped with a variety of Load Lugger containers and mounted on a standard truck chassis, this flat truck bed with its powerful hydraulic hoisting arms will pick up, load, and dump refuse, sludge, liquids, concrete, and many other materials. As an ordinary flat-bed truck, it lifts up to 18,000 pounds. Containers, when used, are hoisted to a level position, carried with the load well forward, dumped, and put down. Detailed information on the Load Lugger truck is available from BROOKS EQUIPMENT & MFG. CO., 202 DAVENPORT RD., KNOXVILLE, TENN.

Rock Salt Protects Unpaved Streets

82 A loss of surface material on unpaved streets and roads due to hot, dry weather, costs dearly in repair and maintenance. Avoid this unnecessary expense by stabilizing street surfaces with Sterling rock salt and clay. Rock salt provides the street with a firm surface, keeping it hard, dense, tight, and stable. The Sterling stabilized surface is flexible, and adapts easily to any weather. Literature on road stabilization is available from the INDUSTRIAL DIV., DEPT. AC-6, INTERNATIONAL SALT CO., INC., SCRANTON 2, PA.

Sweeps Gutters, Walks and Alleys

83 Designed for congested, downtown streets, and other areas where big sweepers are impractical, this new heavy-duty unit is the ideal answer to costly pushbroom crews. The Tennant sweeper cleans a 48-inch path and turns easily in a 5-foot radius. It is equipped with a 36-inch brush, in a vacuumized compartment, which throws the dirt forward into an enclosed 9-cubic-foot hopper. For full information, write the G. H. TENNANT CO., 2520 N. 2nd ST., MINNEAPOLIS 11, MINN.

Long-Wearing Plastic Traffic Markers

84 Two years after their installation on Park Ave. at 57th St., in New York City, sturdy Dur-O-Line markers were still clearly legible, despite the fact that more than 2-million vehicles passed over them each month. Constructed of Tenite butyrate plastic, the markers feature molded-in colors—white, yellow, or red—that won't tarnish or chip off. They are easy to install, and immune to changing temperatures. Write the TRAFFIC SAFETY SUPPLY CO., N. E. SANDY BLVD. at 27th, PORTLAND 12, ORE.

Vibrate Those Blacktop Patches

85 Simplify your street construction work by using Jackson electric vibratory compacting equipment, made in single and multiple units in widths ranging from 12 inches to 12 feet. These compactors work well on blacktop patching and widening projects, and are equally advantageous in paving streets with bituminous, sand, gravel, and other mixed-in-place combinations. They are described in full in literature from JACKSON VIBRATORS, INC., LUDINGTON, MICH.

Scraper Adapts to Year-Round Use

86 In spring, summer, and fall use these new undertruck scrapers to maintain your streets and roads. In winter, use them to remove snow and ice. The Root scraper is easily installed on any 1½- to 8-ton truck. It features positive hydraulic down pressure, and a moldboard that swings out of the way when not in use. Additional data are contained in *Bulletin* 333, available from the ROOT SPRING SCRAPER CO., 545 W. NORTH ST., KALAMAZOO, MICH.

Curb and Gutter Forms

87 An economical way to handle your city's concrete curb, curb and gutter, or sidewalk construction jobs, is to use Blaw-Knox steel forms. These forms may be used a number of times in a variety of combinations for straight, curved, or serpentine shapes. They are easy to set, strip, and transport, and require no maintenance. Write the BLAW-KNOX CO., BLAW-KNOX EQUIPMENT DIV., PITTSBURGH 38, PA.

Lightweight Engines

88 The lightweight 2- to 4-hp engines made by this company, provide easy starting for rotary lawn mowers, and sustained performance at high speeds and heavy loads for chain saws. They are designed with fewer moving parts for longer life and quick, low-cost servicing. Get full details from POWER PRODUCTS CORP., GRAFTON, WIS.

Dependable Sewage Pumps

89 The horizontal and vertical pumps made by this company for use in municipal sewage plants and lift stations won't clog, and are specially designed for dependable operation at low cost. They are accurately described in *Condensed Catalog M*. For your copy, write the AURORA PUMP CO., DIV. of THE NEW YORK AIR BRAKE CO., 66 LOUCKS ST., AURORA, ILL.

Pit-Bull Plus Attachments Does 12 City Jobs

90 Eleven attachments are available with the new Davis Pit-Bull, a hydraulic unit designed for mounting on the rear of your Ford or Ferguson tractor, enabling it to perform a wide variety of city jobs. These attachments facilitate digging, loading, trenching, sweeping, and lawn mowing. They are easy to change, and may be purchased separately. The Pit-Bull employs simple control levers and a syncro-mesh transmission for 4 speeds in each direction. Write MID-WESTERN INDUSTRIES, INC., DEPT. A, PB-1, 1009 S. WEST ST., WICHITA, KANS.

Better Refuse Collection At Lower Cost

91 Cost-conscious sanitation officials interested in collecting greater amounts of refuse economically and in less time, are offered the enclosed Pak-Mor refuse collection body. Designed for easy installation on almost any cab-over-engine truck, the Pak-Mor unit features sealed doors that keep the refuse from spilling over, a low loading height, and a heavy-duty packer plate that travels the full length of the body. All refuse is compressed into a full load under 18,000 pounds of pressure. Get details from PAK-MOR MFG. CO., P. O. BOX 6147, SAN ANTONIO, TEXAS.

Extends Life of Black Top Pavement

92 Spread over parking areas, playgrounds, runways, and other bituminous pavements, Tarvia Bituminous Gel seals the surface, protecting the pavement from the adverse effects of temperature changes, water, and gasoline. This rapid-curing material dries into a tough, elastic coating that extends life of blacktop pavements. It is made by BARRETT DIV., ALLIED CHEMICAL & DYE CORP., 40 RECTOR ST., NEW YORK 6, N. Y.

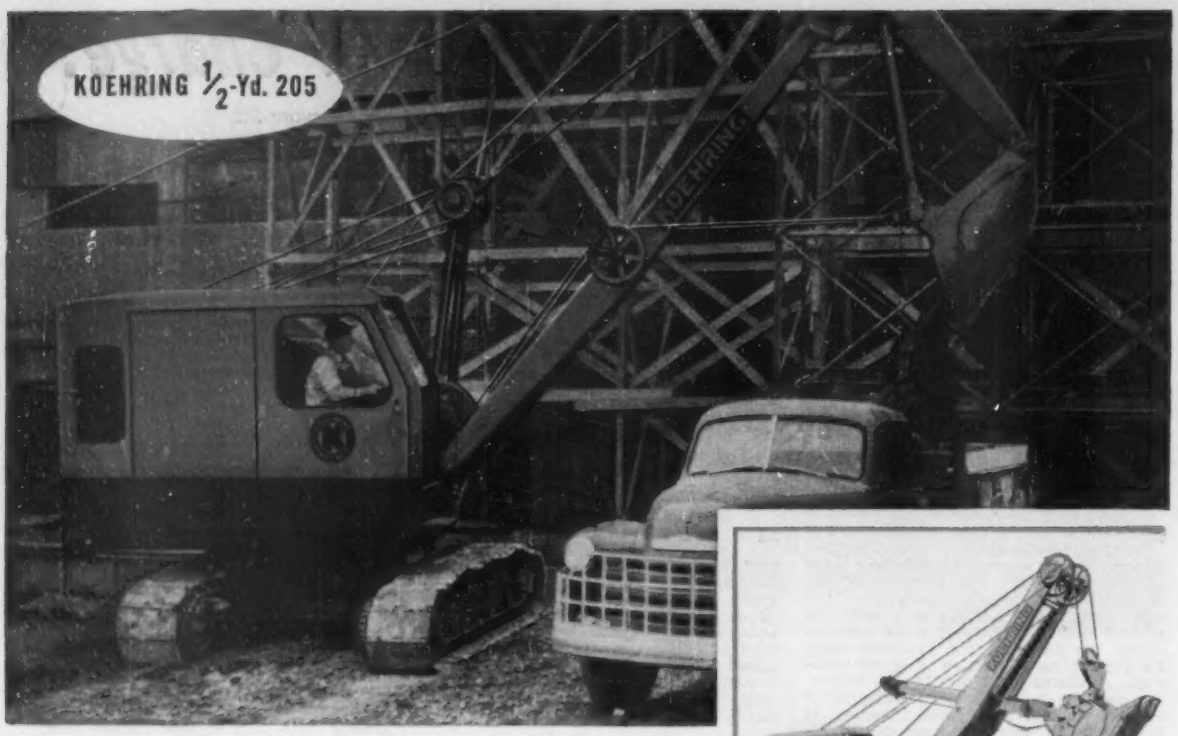
Sewage Ejectors

93 An increasing number of sanitary engineers are recommending these pneumatic ejectors as the best method of lifting sewage and sludge at treatment plants. Made by the BLACKBURN-SMITH MFG. CO., 150 OBBERVER HIGHWAY, HOBOKEN, N. J., pneumatic ejectors are designed with float and electrical float switch controls, a float and pneumatically controlled snap-action valve, and electrode controls. They completely eliminate the messy, time-consuming job of cleaning screens and pumps. *Catalog S50* on request.

Combination Crane, Shovel and Digger

94 Mounted on any 1½-ton or larger truck, this new hydraulic unit works as a mobile digger, shovel, or crane, doing a variety of city jobs economically. The fast-cycling power shovel has a capacity of 40 cubic yards per hour, and the portable digger digs 11 feet deep. Optional equipment includes a crane boom, backhoe, and shovel buckets. Full details on the Hopto hydraulic unit are obtainable from the BADGER MACHINE CO., WINONA, MINN.

(Please turn to page 27 for more Bulletins)



digs 17¾ feet deep . . . dumps at 10 foot height

With its long, deep reach, Koehring ½-yard 205 hoe digs 17¾ feet below grade . . . has 10-foot clearance height at beginning of dump to load trucks. Maximum cutting width, with side cutters, is 32 inches. During the hoist-and-swing cycle, close-coupled dipper pulls up tight to boom, avoids spillage. Powerful cable crowd, fast line and swing speeds maintain big-yardage production. Heavy-duty, box-section boom and dipper arm resist side-sway in toughest digging. Operators like the 205's ease of operation . . . *you'll* like its EXTRA WORK CAPACITY. Here are some of the heavy-duty advantages you get that increase production with every 205 attachment:

Big 20-inch main drum clutches.

Only 2 major shafts in upper machinery . . . simple, accessible.

Heavy-duty splined shafts . . . carburized, hardened gears.

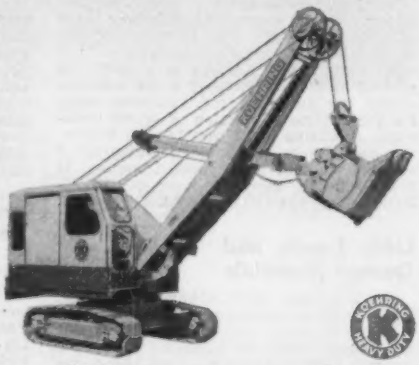
4 hook-rollers, eccentric adjustment.

Automatic crawler traction-brakes.

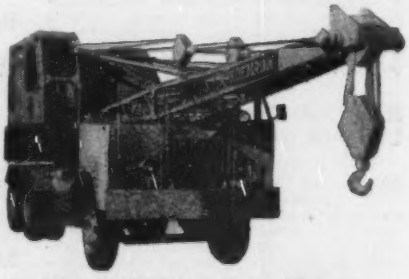
Standard or extra-long crawlers . . . with 16, 20, or 24-inch shoes.

Independent traction . . . optional.

Antifriction power-flow for dig, hoist, swing, travel.



Crawler-mounted 205 brings you: ½-yard dipper capacity as a shovel or hoe . . . ½ to ¾-yard bucket capacity as a clamshell or dragline . . . 10-ton lift crane.



Truck-mounted 205 has 15 tons lift capacity, 25 to 55-ft. boom, plus max. 30-ft. jib. Travels 32½ m.p.h. Converts to all standard excavator, crane attachments.

Get the complete story on this new 205. Ask your Koehring distributor for details, or write for bulletin.

Tell KOEHRING CO., Milwaukee 16, Wis.
Send us bulletin on the new ½-yard, 15-ton 205.

NAME _____ TITLE _____
DIVISION _____
STREET _____
CITY _____ STATE _____

KOEHRING
COMPANY • Milwaukee 16, Wis.
Subsidiaries: PARSONS • KWIK-MIX • JOHNSON
K467

Which Catalogs Interest You?

Write directly to the manufacturers or use the coupon on page 22

Ends Dust on Streets, Playgrounds, Parking Areas

95 A clean, odorless, inexpensive way to eliminate dust on unpaved streets, park walks, playgrounds and parking areas, is to treat the surfaces with calcium chloride. Easily applied, calcium chloride works effectively on gravel, limestone, cinder, and crushed-stone surfaces. The chemical won't track or discolor the surface, and reduces painting and maintenance costs. *End Dust*, an informative, new book on Solvay calcium chloride, is available free from SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP., DEPT. 61-6, 61 BROADWAY, NEW YORK 6, N. Y.

Instruments for Treating Water, Sewage Wastes

96 Fifteen new catalogs discussing dependable instruments for water and sewage treatment are offered by FISCHER & PORTER CO., 5330 FISCHER RD., HATBORO, PA. They are: *Catalog 70-10*, corrosion-resistant Ratochlor chlorinator. *70-15*, high-capacity Ratochlor chlorinator. *10-A-25*, Flowrator meter, measures gas or liquid flow. *10-A-43*, Ratosleeve meter, measures large flows. *10-A-51*, Ori-Flowrator meter, measures flow rate, *10-A-52*, V/A Cell kinetic manometer. *10-B-37*, mercury manometer, measures flow rate. *13-A-10*, Levelator cable and drum type liquid level indicator. *70-50*, Feedrator chemical feeder. *10-A-83*, Bull's Eye flapper type flow indicator. *53-20*, flow ratio controller. *55-10*, miniature indicator for panel mounting. 11-A-10, more instruments for measuring liquid or gas. *60-11*, Valvrator diaphragm air motor valve. *12-A-10*, temperature measuring instruments.

Plastic Traffic Signs Won't Break or Rust

97 No maintenance is needed for this new, lightweight, plastic traffic sign made by the MUNICIPAL STREET SIGN CO., INC., 777-9 MEEKER AVE., BROOKLYN 22, N. Y. Sy-Loy traffic signs are reinforced with tough fiberglas, fused under heat and pressure with weather- and age-resistant polyester resins and pigment. They are available plain or reflectorized, in all sizes, and with all standard legends. New Sy-Loy brochure sent on request.

Chipper Speeds Brush Disposal

98 An easy way to dispose of brush without burning it and, at the same time, reduce hauling costs, is to use an Asplundh chipper made by the ASPLUNDH CHIPPER CO., 507 YORK RD., JENKINTOWN, PA. The units are available in three sizes, either as self-contained trailers or for easy mounting on trucks, tractors, or skids. When mounted on tractors they facilitate brush disposal in hard-to-reach places.

Inexpensive, Handy Burner And Gas-Leak Detector

99 Soldering, brazing, burning, and easy detection of gas leaks; all are provided by the Turner combination burner and gas-leak detector. All units have disposable fuel tanks to end refilling problems. The cost is remarkably low. Write THE TURNER BRASS WORKS, SYCAMORE, ILL.

Leaf Removal in Street Cleaning

100 One way to solve your city's street-cleaning problems, is to eliminate the job of collecting leaves at the curb by using an Obeco Tornado. The Tornado is equipped with a flexible hose that sucks in fallen leaves along with other debris. The loaded truck is then driven directly to the dump site for unloading. For full information, write the OMAHA BODY & EQUIPMENT CO., INC., 24th and VINTON STS., OMAHA, NEBR.

Marks One, Two, or Three Traffic Lines

101 Designed for all of your city's major striping jobs, the Model 345 Truck-O-Liner will mark 1, 2 or 3 traffic lines—solid or intermittent or a combination of both—from 6 to 36 inches wide. One or more colors of reflective or non-reflective marking materials may be used, and are applied in one integrated operation. For additional information, write WALD INDUSTRIES, INC., HUNTINGDON, PA.

Protect Public Property With Chain-Link Fence

102 How to protect municipal installations against trespassers and vandals, is fully explained in *Catalog 108* from CYCLONE FENCE, DEPT. B-64, WAUKEGAN, ILL. Included are descriptions and illustrations of the company's complete line of chain link "Safeguard," "Invincible," and "Non-Climbable" fence, steel picket fence, gates, partitions, and window guards. Copies on request.

Playground Equipment

103 A special catalog and the new booklet, *Planning Your Playground*, from THE J. E. BURKE PLAYGROUND EQUIPMENT CO., discuss the company's full line of playground equipment designed for safe, long-lasting operation. Included are the Burke hobby-horse, glider, and climb-a-round. Also available are a price list and complete specifications. Address the company at FOND DU LAC, WIS.

Centrifugal Pumps

104 Made in three sizes ranging from 2½- to 4 inches with capacities to 400 gpm and heads to 230 feet, GS centrifugal pumps feature standardized, interchangeable parts for low-cost maintenance and service. They are fully described, complete with diagrams and specification data, in *Bulletin 1001B*, available on request from the DE LAVAL STEAM TURBINE CO., 866 NOTTINGHAM WAY, TRENTON 2, N. J.

Glass Bead Dispenser

105 Attach this new glass bead dispenser to any striping machine and use it for marking traffic lines on streets, highways, and airports. The Bavin dispenser distributes the glass beads automatically on any strip from 2 to 6 inches wide for solid or skip lines. One power unit can operate from one to three dispensers. Write the G. D. BAVIN CO., 2500 W. SIXTH ST. BLDG., LOS ANGELES 57, CALIF.

Increased Power for Ditchers and Excavators

106 Minneapolis-Moline engines, now being used to power Barber-Greene ditchers and Warner-Swasey Gradalls, deliver high torque power at moderate rpm for lower fuel and maintenance costs. The company's valves feature extra high lift, a large diameter stem, and exhaust valve seats in the form of special stellite inserts. Complete information on a wide range of MM power sizes and fuel types, including the firm's new "energy-cell" diesel unit, may be obtained from MINNEAPOLIS – MOLINE, INDUSTRIAL DIV., MINNEAPOLIS 1, MINN.

Use This Rope With Bell and Spigot Joints

107 When choosing a yarning rope for use with bell and spigot joints, choose one that will not contaminate the water, advises JOHNS-MANVILLE, BOX 60, NEW YORK 16, N. Y. This company uses strands of asbestos, an inorganic material that will not harbor bacteria, to form a rope that can't rot or decay. This asbestos yarning rope is easy to handle and packs tightly in the joint. It is fully described in *Folder PK-55A*.

Instructions for Installing Emergency Electric Plants

108 Written for the city official who has no special knowledge of the subject, this technical bulletin describes and illustrates the best methods for installing and controlling emergency standby electric generating plants and automatic line transfer controls. The bulletin shows typical installations of Onan water-cooled and air-cooled electric plants, easy-to-understand wiring diagrams, and diagrammatic drawings. For your copy of *Bulletin T-011*, write D. W. ONAN & SONS, INC., 8364 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN.

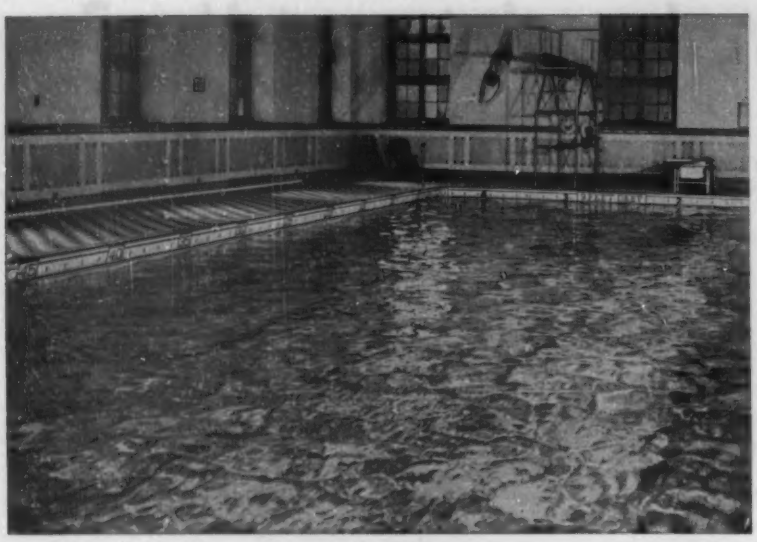
Combination Unit Digs and Loads

109 All you have to do to transform the Oliver 88WT Hydro-Trencher into an efficient loading unit is turn the trenching bucket around, according to THE OLIVER CORP., 400 W. MADISON ST., CHICAGO 6, ILL. Equipped with a ½-yard bucket, the unit digs 10 feet deep through rocky soil, roots, or hard clay, and loads to a height of 10½ feet. Each 88WT Hydro-Trencher and Swing Loader combination features a 200° boom swing, and is available with an optional boom cylinder and optional loading bucket.

Hydraulic Mower for Parks and Airports

110 Equipped with a built-in hydraulic system, and easily attached to a tractor, jeep, or other towing vehicle, this new Roseman mower works efficiently and economically, mowing large areas of grass in less time. The self-contained hydraulic system is mounted on the mower frame and may be connected to the tractor in some 60 seconds. A hollow-roller-drive and rear-wheel-drive facilitate travel, and the mower is easily transported through narrow gates and entrances. Write ROSEMAN MOWER CORP., EVANSTON, ILL.

(Please turn to page 28 for more Bulletins)



for lasting pool clarity with least manual care

Chances are, if you are concerned with the specification or performance of swimming pool filters, you know that the job is done best by diatomite filtration. But you may not know the vast difference in design, operation and cost among the several makes of filters employing a filter aid.

The new Adams SPF is identical in basic design to the Adams Poro-Stone filters that have met the high standards of industrial water filtration for nearly two decades. Now pool operators get for a moderate price, more filtering surface in less space, easiest possible operation and delivery virtually from stock. Range of filter capacities for small and large pools.

TODAY'S FINEST DIATOMITE Swimming Pool Filter

ADAMS SPF

Filter at Garfield Park Pool, Grand Rapids, Mich.

for further information, write to

R. P. ADAMS Co., Inc. 232 E. PARK DRIVE BUFFALO 17, N. Y.

More-Literature

Write directly to the manufacturer or use coupon on page 22

A Sludge Vacuum Filter That Never Clogs

111 The modern sludge de-watering requirements of a sewage-treatment plant demand a sludge vacuum filter that won't clog and, at the same time, is inexpensive to operate and maintain. Combining these advantages is the Coilfilter, a dependable vacuum filter made by the KOMLINE-SANDERSON ENGINEERING CORP., PEAPACK, N. J. The Coilfilter contains a permanent filter media of alloy steel coiled springs that are completely cleaned after each dewatering cycle. These springs won't rot or rust, and completely eliminate the need for a filter cloth or mesh.

Keeps Swimming Pool Water Clean and Inviting

112 A good way to keep the water in public swimming pools clear and sparkling, is to install a Graver diatomite filter. Requiring from 50% to 70% less space than ordinary sand or anthrafilt filters, diatomite units treat the water by passing it through a form of silica known as diatomacious earth. These filters may also be used in municipal filtration plants. They are discussed in literature from GRAVER WATER CONDITIONING CO., 216 W. 14th ST., NEW YORK 11, N. Y.

Controls Garbage Odors, Repels Rodents

113 Add ½-gallon of this concentrated liquid to 50 gallons of water, and spray or sprinkle the solution over garbage dumps and sanitary landfills. In addition to eliminating unpleasant odors, Sanifil destroys insect larvae, and repels flies, rats, and wild and domesticated animals. Two new bulletins, *Sanifil in The Sanitary Landfill Method of Garbage and Refuse Disposal*, and *Sanifil — Additional Uses*, are available from STEWART-HALL CHEMICAL CORP., 550 S. FULTON AVE., MOUNT VERNON, N. Y.

Cutters and Mowers For Farmall Tractors

114 Single blade rotary mowers with a 42-inch cutting swath, operating at 1,300 rpm, and rotary cutters that mow, cut, and shred brush, vines and stalks, are now available for mounting on Farmall Cub and Farmall Super A tractors. Designed for the economical maintenance of parks, airports, and school and hospital grounds, these units may be equipped with a leaf mulcher attachment that shreds leaves into a valuable mulch, eliminating raking and hauling operations. For full information, write WOOD BROS. MFG. CO., OREGON, ILL.

Inexpensive Crane Does Many City Jobs

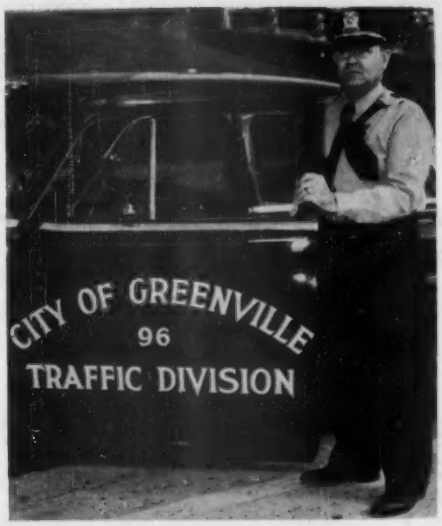
115 Cities can use the new Hydropower Runabout crane for loading, handling, and setting pipe, building materials, lamp posts, hydrants, trees, and coiled wire and, with additional equipment, they can use it for cleaning catch basins as well. The crane may be mounted on any size truck, and is easily operated by one man. It features fully hydraulic lift and swing, will load and unload itself, and loads other trucks, too. Write the ANDERSON ENGINEERING CO., 231 BENT ST., CAMBRIDGE 41, MASS.

(See page 30 for more Bulletins)

In Greenville...
STEELBINDER Fastens the Signs

A. J. Gerrard & Company, a leader in the steel strapping field, salutes another leader among America's most progressive cities, Greenville, S. C. Always watchful for better and more efficient methods, Greenville's Police Department Traffic Division found Steelbinder the outstanding method of fastening signs. Many other leading cities have reported like findings. We invite you to investigate and compare.

A Greenville maintenance crew fastens a new sign the Steelbinder Way, across from Greenville's main Post Office.



Police Lt. P. P. Oakes, Greenville Traffic Supervisor

Try Greenville's Method . . .

the Steelbinder Way of strapping signs. Our "Street Signs" brochures will familiarize you with this time-saving, economical, more efficient method of sign strapping. Write for them today . . . A Steelbinder service representative will gladly help you solve your sign strapping problems.

STEELBINDER

- Strapping in stainless or galvanized steel for sign applications. Also aluminum and many other strap types to fill every sign strapping requirement.
- Complete line of sign-attaching accessories—brackets, extension arms, bolts and seals in stainless and galvanized finishes.

STEEL STRAPPING

A. J. Gerrard & Company

1952 HAWTHORNE DRIVE
MELROSE PARK (CHICAGO SUBURB) ILLINOIS

WAREHOUSES IN 6 KEY CITIES

BIRMINGHAM	OAKLAND
CLEVELAND	PORTLAND
NEWARK	MELROSE PARK

Sales - Service Offices in 45 Principal Cities

NO TRAFFIC TIE-UP

. . . on Street Repair Job in Waukegan, Illinois

BANTAM cleans city block-long trench in 2 HOURS!

On this street repair job in Waukegan, Ill., Carrier mounted BANTAM with Clamshell removed paving cut for sewer installation, excavated for new paving . . . was followed by ready-mix truck pouring new pavement!

1 MAN OPERATION WITH REMOTE CONTROL

"You can work real fast with a BANTAM on cramped city work like this," says Charles M. Jones, Operating Engineer. "AND, without tying up traffic!" REMOTE CONTROL made a one-man operation of the job. Jones simply started the truck engine and drove into position on the job by controls located in the basic cab . . . NO TRUCK DRIVER NEEDED!

"THIS MACHINE REALLY PAYS FOR ITSELF," said Jones. BANTAM's high-speed mobility lets operator drive over streets, alleys, into tight spots, as easy as a truck. 9 fast-change attachments mean that the BANTAM can handle dozens of jobs normally handled by expensive one-purpose equipment!

GIVE YOUR BUDGET A BREAK. The BANTAM METHOD will enable you to get *more jobs done, at less cost, with more efficiency!*

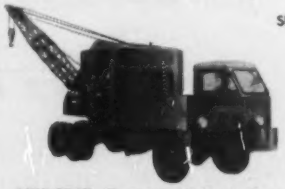
FIND OUT MORE about the BANTAM METHOD . . . HOW it can save your budget dollars . . . FREE information and literature available. Use the handy coupon TODAY!

OTHER BANTAM JOBS!

- ★ STREET & ALLEY REPAIRS
- ★ BUILDING HIGHWAY APPROACHES
- ★ SANITARY LANDFILL PROJECTS
- ★ SPOT REPAIRS ON SEWERS
- ★ TRENCHING FOR NEW SEWERS
- ★ BUILDING & MAINTENANCE OF WATER PURIFICATION SYSTEMS
- ★ LOADING & UNLOADING MATERIALS FROM RR CAR & TRUCK
- ★ BRIDGE BUILDING & MAINTENANCE
- ★ EXCAVATIONS FOR CITY INSTALLATIONS
- ★ AIRPORT, PARK & PLAYGROUND DRAINAGE, CONSTRUCTION & MAINTENANCE

ASK ABOUT THE NEW "200" CRANE CARRIER

SB-AC-3



LOW COST - The most modest budget can afford the "200" Crane Carrier.
COMPLETELY REMANUFACTURED - Includes NEW short block engine assembly, all-new Cab, Tires and many other parts.

CLIP . . .

Mail Today for more information about the **BANTAM**

Name_____
Title_____
Address_____
City_____ State_____

SEND INFORMATION ON:

- ☐ Name of nearest Bantam Distributor
- ☐ New 200 Crane Carrier
- ☐ Crawler Mounted ☐ Truck Mounted
- ☐ Concrete Bucket ☐ Pile Driver
- ☐ Clam ☐ Crane ☐ Drag ☐ Shovel
- ☐ Back Hoe ☐ Backfiller ☐ Magnet

SCHIELD Bantam

COMPANY • 234 Park St., Waverly, Ia., U. S. A.

WORLD'S LARGEST PRODUCER OF TRUCK-CRANES AND EXCAVATORS

Catalogs for You

Write directly to the manufacturer or use coupon on page 22

Low-Cost Aerial Maps

116 Why conduct costly ground surveys when inexpensive aerial maps will provide you with complete accuracy? asks the AERO SERVICE CORP., 236 E. COURTLAND ST., PHILADELPHIA 20, PA. Aero's photogrammetric engineers will furnish up-to-date, dependable maps of your city months ahead of ground surveys, at a savings of 50% or more.

Piping, Tubings and Fittings

117 MICHIGAN PIPE CO., BAY CITY, MICH., will custom-fabricate pipe, tubing, fittings and assemblies for sewage-disposal plants and others, in carbon steel, stainless steel, and Monel metal. Wall thicknesses range from 5/64- to 9/16-inch, and internal diameters from 6- through 48 inches. Lengths up to 40 feet are available. Write for literature.

Soil Pulverizer and Seeder

118 The combination soil pulverizer and seeder made by this company will grade, scarify, level, roll, and pulverize the soil, in addition to seeding large lawns economically and in less time. Several models are available, each of which is described and illustrated in literature from the GILL MFG. CO., 2032 TRYON ST., CHARLOTTE 3, N. C.

Accurate Electric Meters

119 Meter your electric power loads up to 200 Amp. with self-contained watthour meters made by the DUNCAN ELECTRIC MFG. CO., LAFAYETTE, IND. The singlephase and polyphase watthour meters, demand meters, sockets and heavy-duty mounting devices offered by this firm, are designed for low-cost electrical measurement and sustained accuracy. They are simple to install and inexpensive to maintain. New catalog on request.

Gasoline Hammer

120 Cities may use the Barco gasoline hammer for pavement breaking, digging, rock drilling, and frost breaking. Quickly transported from job to job, the unit is easily operated by one man with an air compressor. For full details, request *Bulletin 613* from the BARCO MFG. CO., 535-H HOUGH ST., BARRINGTON, ILL.

Better Street Lighting

121 The Joslyn junior luminaire will provide improved lighting for the residential streets in your community. It is adaptable to any Joslyn Style 90 or Style 50 I.E.S. aluminum head—or any Joslyn porcelain head, and may be used with 1,000 or 2,500 lumen lamps. For *Catalog No. 17*, write the JOSLYN MFG. AND SUPPLY CO., 20 N. WACKER DR., CHICAGO 6, ILL.

Cuts Pipe Quickly

122 A portable pipe saw that makes fast, accurate cuts on 10- to 48-inch cast-iron and steel mains, is offered by THE E. H. WACHS CO., 1525 N. DAYTON ST., CHICAGO 22, ILL. The Wachs National pipe saw is easily carried by two men, and may be set up in some 15 minutes.

(See page 33 for more Bulletins)

BACK OF THE FINANCING . . .

SEE THE STORY IN THIS ISSUE
featuring the EAU CLAIRE, WISCONSIN $140,000 parking ramp

OF EAU CLAIRE'S THREE-LEVEL RAMP
(AND OFF-STREET PARKING LOTS)
IS THE PROVEN PERFORMANCE OF
DUNCAN-MILLER METERS.

When municipalities incur long-term indebtedness by issuing parking lot bonds, they must install the *best* in parking meters to be assured of the revenue to meet that obligation. That's why Eau Claire is using approximately 1,200 DUNCAN-MILLER meters for its on-and-off-street parking program.

Write TODAY for our informative brochure complete with suggestions for engineering, designing and financing off-street parking facilities. It's yours for the asking.

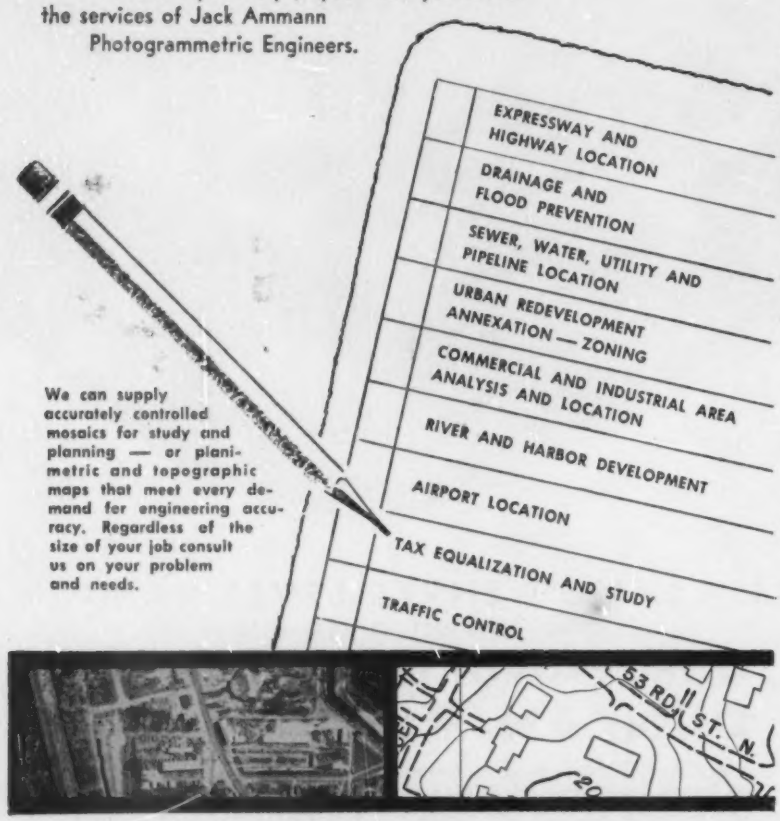
DUNCAN PARKING METER CORP.

835 N. WOOD ST., CHICAGO 22, ILL. • FACTORY at HARRISON, ARKANSAS

Manufacturers of the DUNCAN-AUTOMATON fully automatic and the DUNCAN-MILLER manual parking meters

for Savings Speed and Simplicity ... your AMMANN aerial survey

The engineering problems of
private and public enterprise
are more easily solved,
in far less time,
at incredible cash savings,
when aerial surveys are used to clarify and simplify tough tasks.
As a leader in this vital field for nearly a quarter of a century,
Jack Ammann has won worldwide recognition
by both business and government for the excellence of their services.
If your problem is among those listed,
the solution will be made easier and the job completed quicker
and less expensively if you avail yourself of
the services of Jack Ammann
Photogrammetric Engineers.


EXPRESSWAY AND HIGHWAY LOCATION
DRAINAGE AND FLOOD PREVENTION
SEWER, WATER, UTILITY AND PIPELINE LOCATION
URBAN REDEVELOPMENT ANNEXATION — ZONING
COMMERCIAL AND INDUSTRIAL AREA ANALYSIS AND LOCATION
RIVER AND HARBOR DEVELOPMENT
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TAX EQUALIZATION AND STUDY
TRAFFIC CONTROL
53 RD AVE. N.

We can supply accurately controlled mosaics for study and planning — or planimetric and topographic maps that meet every demand for engineering accuracy. Regardless of the size of your job consult us on your problem and needs.

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PHOTOGRAMMETRIC ENGINEERS, INC
BROADWAY AT TENTH SAN ANTONIO 5, TEXAS
AIR SURVEYS—MAPS

EASTERN OFFICE: Manhasset, N. Y.—32 Hillcrest, P. O. Box 411, Phone Manhasset 7-1840
WESTERN OFFICE: (Denver) Lakewood, Colo., 995 Flower St., Phone Bel. 3-2090

More Literature

Write directly to the manufacturer or use coupon on page 22

Installs Pipe Underground

123 You don't have to break up pavement to place water and sewer pipe under street surfaces. The Earthworm will install lines up to 6 inches in diameter and 150 feet long, quickly and accurately. Pipe and conduit are used as drill stem sections and left as permanent installations. Write LUBE-JACK CO., P. O. BOX 1100, SANTA MONICA, CALIF.

Sturdy Park Benches

124 The steel framework of this long-wearing park bench is galvanized to guard against rust, eliminating the cost of annual repainting. The wood slats are painted an attractive shade of green to harmonize with park surroundings. For full specifications, write THE STEWART IRON WORKS CO., INC., 2121 STEWART BLOCK, CINCINNATI 1, OHIO.

Water Meter Features Interchangeable Parts

125 American water meters offered by this company are of simple design, and are equipped with interchangeable parts for economical maintenance and repair. They are discussed in full in literature from the BUFFALO METER CO., 2902 MAIN ST., BUFFALO 14, N. Y.

Kills Flies, Ants, Mosquitoes

126 The cheapest way to combat mosquitoes is to destroy the larvae, says the Velsicol Corp., using inexpensive Heptachlor oil solutions, emulsions, or granular formulations as larvacides. For general fly control, a 2½% Chlordane finished emulsion is suggested, while Chlordane oil solution or emulsion will effectively destroy a variety of ant species. *Bulletin No.* 49 discusses mosquito control; *Bulletin No.* 36, fly control; and *Bulletin No.* 33, ant control. Write VELSICOL CORP., 330 E. GRAND AVE., CHICAGO, ILL.

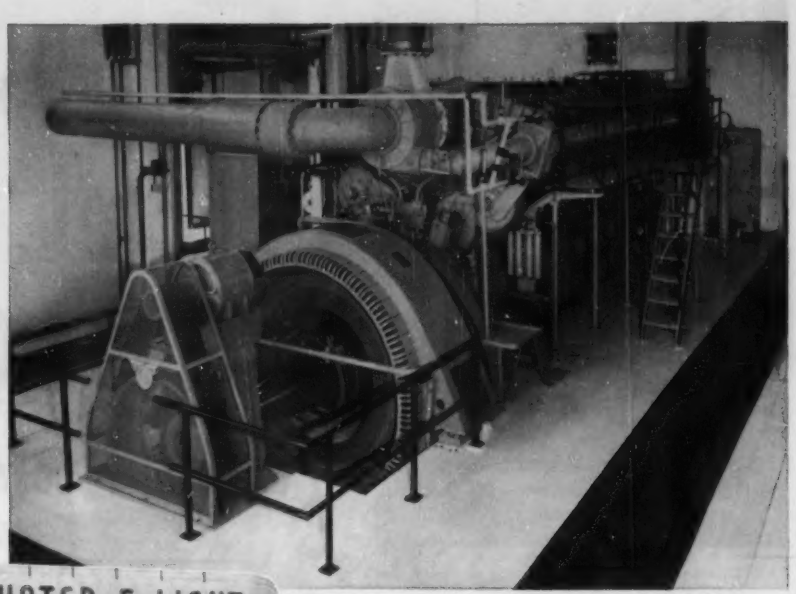
Garden Distributor Works Well in City Parks

127 A low-cost, tractor-drawn garden distributor, the Masters Model M361F will accurately distribute any material in parks and on public lawns. The unit is especially valuable for row-crop spreading and has adjustable plates for distributing material on or between rows over a 36-inch span. It sells for less than $100, and is fully described in literature from MASTERS PLANTER CO., MASTERS BLDG., BENTON HARBOR, MICH.

A Good Shade Tree for Parks and Boulevards

128 Few things enhance parks and boulevards as do healthy, attractive shade trees such as the Augustine Ascending Elm. An ideal land planning architectural feature, this tall, yet narrow elm tree, can today be found in over 170 urban communities, including New York City, Washington, D. C., and Baltimore. An avenue of Augustine Ascending Elms assures the free passage of traffic, for even the fully matured tree does not overhang. THE AUGUSTINE ASCENDING ELM RESEARCH ASSN., 932 E. 50th ST., CHICAGO 15, ILL., will furnish the illustrated booklet, *A New Elm is Born.*

Another Example of Efficient Power at Lower Cost



Above Latest addition to the Brady, Texas, plant — a 3,550 hp supercharged Cooper-Bessemer LSV-16 Gas-Diesel installed in August 1952

BRADY'S GREATEST PUBLIC BENEFACTOR

. . . a Cooper-Bessemer-powered municipal plant

TO say that the home-owned water and light plant at Brady, Texas, is a public benefactor is putting it mildly! Since 1942 this plant has advanced to this city of 7,000 more than $600,000 for civic improvements, *plus* service donations exceeding $200,000. It has helped keep taxes very low while defraying the costs of fire fighting equipment, police protection, street lighting, a new "whiteway" system, power for churches and schools at half cost, road improvements, 20 miles of new pavement and various recreation facilities including a swimming pool.

The Brady plant, like so many other efficient municipal plants, is powered with modern Cooper-Bessemer Gas-Diesels, assuring the highest thermal efficiencies known. Brady's latest is a big 3,550 hp supercharged unit installed in August last year. Because of its high efficiency it is kept in virtually 24-hour operation . . . 5205 hours through March 20, producing 7,325,000 kwh. The remainder of Brady's power is supplied by two older tandem-connected Cooper-Bessemers almost as efficient.

To make the most of your power plans for the future, be sure to check on the distinct advantages you stand to gain with modern Cooper-Bessemers.

MOUNT VERNON, OHIO
COOPER-BESSEMER
GROVE CITY, PENNA.

New York Washington, D.C. Bradford, Pa. San Francisco Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle Shreveport St Louis Los Angeles Chicago Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Tulsa Gloucester, Mass. New Orleans, La.

DIESELS • GAS ENGINES • GAS-DIESELS • ENGINE-DRIVEN AND MOTOR-DRIVEN COMPRESSORS • HIGH PRESSURE LIQUID PUMPS

UNPAVED STREETS—Roads treated with SOLVAY Calcium Chloride are compact, dust-free, smooth-riding surfaces. Calcium Chloride treated roads end complaints from motorists and local residents and reduce road maintenance costs. Calcium Chloride ends dust on gravel, limestone, cinder, crushed stone and similar unpaved surfaces.

PARKING AREAS—Parking lots that are clean and dustless keep patrons happy . . . attract new customers . . . reduce complaints from residents in neighborhood and promote good public relations with taxpayers.

SCHOOLS AND PLAYGROUNDS—Play areas are kept clean, more healthful and free of germ-bearing dust. Odorless, colorless SOLVAY Calcium Chloride will not stain clothes and equipment.

Keep Unpaved Surfaces CLEAN, SMOOTH and DUSTLESS

with Low-Cost, Clean, Odorless

SOLVAY Calcium Chloride

SOLVAY Calcium Chloride is the inexpensive, efficient way to eliminate dust. This clean, odorless, economical material keeps all unpaved surfaces and adjoining areas healthful and free of germ-bearing dust.

SOLVAY Calcium Chloride is easy to use—requires no special knowledge. It can be applied quickly by regular maintenance personnel—no experience or expensive equipment is necessary.

Send for FREE BOOK

This highly informative book "END DUST" gives complete details on methods of application, quantities required, etc. It contains photos, illustrations, charts, and easy-to-follow, step-by-step instructions on how to end your dust problems.

PARKS—Dust-free walks, drives and bridle paths make parks more attractive and enjoyable to picnic groups and strollers by preserving the beauty of shrubbery, lawns and buildings. Calcium Chloride saves painting and reduces maintenance costs. Will not track or discolor surfaces upon which it is applied.

BASEBALL DIAMONDS—SOLVAY Calcium Chloride ends unsightly dust, making the game more accurate. A dustless diamond reduces sun glare and adds to enjoyment and comfort of the spectators.

TENNIS COURTS—Many of the nation's leading tournaments are held on tennis courts treated with SOLVAY Calcium Chloride. It gives the courts a compact surface . . . makes the game more accurate . . . reduces sun glare . . . makes it easier for spectators to watch and follow fast action shots.

GET THE FACTS!

Mail Coupon Now!

SOLVAY PROCESS DIVISION

Allied Chemical & Dye Corp.
61 Broadway, N. Y. 6, N. Y.

Please send me with no obligation your FREE BOOK —"END DUST with SOLVAY Calcium Chloride".

Name .....

Title .....

Address .....

City ..... Zone ..... State 61-7

YOU WON'T BE SNOW-BOUND AGAIN!

...WITH A BARBER-GREENE

Snow Loader

Big snows paralyze cities and businesses. The Barber-Greene Snow Loader removes snow at a clip of 7-11 yards per minute. A swivel conveyor keeps trucks moving in a continuous production line. Only one traffic lane is required. At a 15 m.p.h. road speed, the B-G Snow Loader moves from one location to another quickly.

Whether your city has a population of 3,000, 300,000 or 3,000,000, it will pay you to investigate. Compared to less efficient methods, the B-G Snow Loader will pay for itself in savings in truck time alone after only 600 hours of operation.

Features of the
B-G Model 544 Snow Loader

- One-Man Operation
- Loads and Trims Long, High-Sided Trucks
- Low Clearance—12' 0"
- Loads Over Cab or with Trucks Alongside
- Hydraulically Controlled Swivel Conveyor
- 15 M.P.H. Road Speed
- Delivers 7-11 Yards per Minute
- Ample Traction and Stability

Other uses for
the *B-G* Model 544 Snow Loader

After the snow season, the B-G Snow Loader, a year 'round machine, handles coal, leaves and other nonabrasives. Also, it can be converted into a Bucket Loader to handle aggregate materials.

283

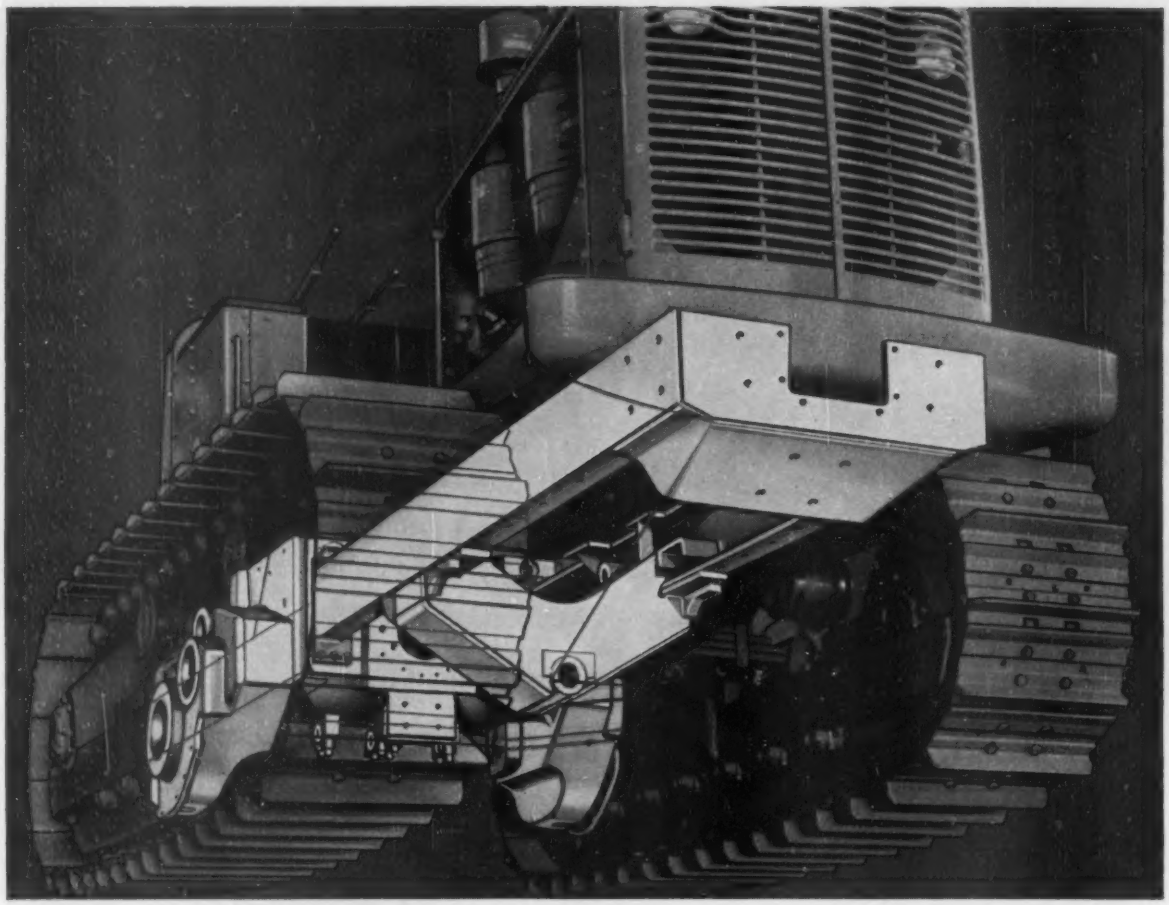
DON'T DELAY...SNOW WON'T!

Write Your B-G Distributor Today for Complete Information

Barber-Greene

BG

Aurora, Illinois, U. S. A.



HOW THE MAIN FRAME CONTRIBUTES TO TOP TRACTOR PERFORMANCE

One of the big reasons why more and more Allis-Chalmers tractors are being used today is their exclusive main frame design.

These frames are one-piece, all-steel welded structural members (like the girders in a bridge or the columns in a building). They help provide greater strength and flexibility to withstand shock loads . . . make possible better equipment mounting, improved weight distribution and outstanding service simplicity as well.

We invite you to see these advantages . . . first at your nearby Allis-Chalmers dealer . . . and then in a demonstration.

"ROLLS WITH THE PUNCH" — All-steel main frame flexes slightly under extreme shock loads . . . without transmitting strain to engine, clutch or transmission.

BETTER EQUIPMENT MOUNTING — This frame's compactness provides ample clearance for equipment like front-end shovels . . . permits wide track shoes . . . improves performance of entire unit.

IMPROVED WEIGHT DISTRIBUTION — Box A-frame allows location of main components for best over-all balance . . . putting more weight lower in tractor where it does the most good.

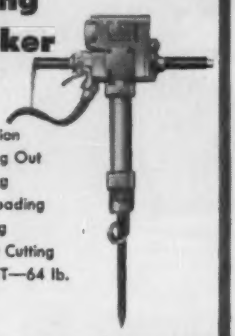
SERVICE SIMPLICITY — Since main frame carries *structural* load, power drive components can be readily removed, repaired or replaced without disturbing adjacent parts.

ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE 1, U.S.A.

Announcing BOSCH

High Cycle Electric Tools

Paving Breaker



FOR:
Demolition
Breaking Out
Chiseling
Clay Spading
Tamping
Asphalt Cutting
WEIGHT—64 lb.

Rock Drill

A lightweight tool that matches the performance of pneumatic Drills. Equipped with Pressure Blower.

WEIGHT:
Drill—65 lb.
Blower—20 lb.

Hammer

A Lightweight Builders Hammer

FOR:
Chiseling
Chipping
Drilling
Cutting
Same Tool
Drills & Strikes

WEIGHT—14 lb.

HOMELITE Dual Purpose Generator

The power supply for Bosch tools — 2,500 watts — operates both High Cycle tools and Standard 110 volt electric tools and floodlights.

WEIGHT 138 lbs.

These ruggedly built tools are real cost cutters on any job. They combine low initial cost with low operating cost for unexcelled economy.

Lightweight — simple in design, yet they give performance equal to bulky, expensive, compressed air equipment.

HIGH CYCLE electric motors, powered by Homelite's dual purpose generator, will give you greater flexibility and thousands of hours of heavy-duty service. Ask for an on-the-job demonstration or for more information. Write Homelite Corporation, Port Chester, New York.

Manufacturers of Homelite
Carryable Pumps • Generators
Blowers • Chain Saws

PERFORMANCE · DEPENDABILITY · SERVICE

HOMELITE CORPORATION

107 RIVERDALE AVENUE • PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Quebec.

ELIMINATE THE PROBLEMS OF COMMUNITY RECREATION

with **Koven all steel Swimming Pools**

THE POOL WITH THE LOWEST MAINTENANCE

- **The Only Leak-Proof Type Built**
- **Indoor And Outdoor Models**

PLANTS: Jersey City, N. J. Dover, N. J. Tranton, N. J.

Leading communities and cities are solving their recreational problems with KOVEN Pools—the all steel swimming pools that boast the lowest maintenance of any type of pool . . . only an occasional coat of paint is needed to keep them in top condition. And since KOVEN Pools are constructed from rugged welded steel, they are free from the weaknesses found in other types of pools. In fact, KOVEN All Steel Swimming Pools are the only leak-proof type built—that's why they give long years of economy and trouble-free performance.

KOVEN Pools are available in many different sizes and designs to meet every need. What's more, you can depend on KOVEN, fabricators of fine steel products for over 70 years, to handle all construction and installation details. Call or write for a consultation—no obligation.

Send for our free, color-illustrated booklet.

KOVEN STEEL SWIMMING POOLS. INC.
A DIVISION OF L. O. KOVEN & BRO., INC.
154 OGDEN AVE., JERSEY CITY 7, N. J.

Judge Layne

by the industries it serves

Our sincere apologies to the many other leading industries space prevents including.

For information on any question that relates to ground water development, write .

Layne & Bowler, Inc.
Memphis 8, Tennessee, U.S.A.

Layne Associate Companies Throughout the World

Water Wells • Vertical Turbine Pumps • Water Treatment

You Can't Beat Steel Pipe for Strength

Bethlehem Tar-Enameled Steel Pipe is widely used for water and sewage service because of its resilience, resistance to shock and corrosion, and leakproof joints. But the most important reason for its popularity is its great strength, which is evident in the chart below.

The chart shows the theoretical working and bursting pressures for various pipe diameters and thicknesses. The pressures shown are based upon the use of steel conforming to ASTM Specification A-283, Grade B, having a minimum ultimate tensile strength of 50,000 psi. When exceptionally severe internal working pressures are encountered, the use of higher strength steel is recommended for greater economy. The nearest Bethlehem office will be pleased to supply complete information.

THEORETICAL INTERNAL PRESSURES OF STEEL PIPE

	1/4 in.			5/16 in.			3/8 in.			7/16 in.			1/2 in.		
DIAM	WT LB/FT	MAX WRK PRESS PSI	MIN BURST PRESS PSI	WT LB/FT	MAX WRK PRESS PSI	MIN BURST PRESS PSI	WT LB/FT	MAX WRK PRESS PSI	MIN BURST PRESS PSI	WT LB/FT	MAX WRK PRESS PSI	MIN BURST PRESS PSI	WT LB/FT	MAX WRK PRESS PSI	MIN BURST PRESS PSI
18	49	445	1390	61	555	1735	73	665	2080	85	775	2430	96	890	2780
20	54	400	1250	68	500	1560	81	600	1875	94	700	2180	107	800	2500
22	63	365	1135	78	465	1420	93	550	1700	109	640	1985	124	730	2270
24	69	335	1040	86	420	1300	102	505	1560	119	585	1820	136	665	2080
30	86	270	835	108	340	1040	129	405	1250	150	475	1455	170	535	1670
36	106	225	695	130	280	870	155	340	1040	181	395	1210	206	445	1390
42	119	195	595	148	240	745	177	285	890	206	335	1040	234	380	1190
48	137	170	520	171	210	650	203	250	780	236	290	910	268	330	1040
54				192	190	580	230	225	695	267	260	810	303	295	925
60				214	170	525	255	200	625	296	235	730	336	265	835
72							309	170	520	359	195	605	408	220	695
84							357	145	450	412	170	520	470	190	595
96	The recommended minimum wall thickness is approximately the pipe diameter divided by 165. Pipe having this diameter-thickness ratio, when backfilled and properly tamped, will withstand any depth of cover. For buried pipe, the recommended minimum thicknesses are shown immediately above heavy black line.									470	145	455	539	165	520
108													*611	150	465
120													*669	135	415

*Under certain conditions stiffeners may be required to reduce deflections.

$$P = \frac{t \times Ts}{r}$$

P = internal pressure, psi
t = thickness, in.
Ts = allowable unit stress = 60% x 27,000 (yield point) = 16,000 psi
r = radius of pipe, in.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM *Tar-Enameled* STEEL PIPE

LOW-COST

VERSATILE

HOPTO

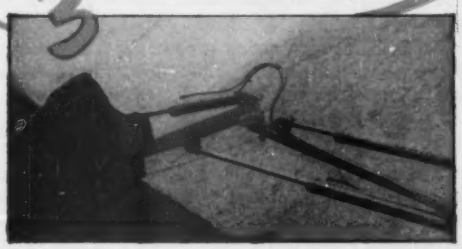
GIVES YOU

3-WAY

WORK CAPACITY

1 DIGGER SHOVEL

2 CRANE



3

SIMPLE TO OPERATE...FAST CYCLING...200° SWING

There is no longer any need to just wish for a mobile crane, a fast cycling power shovel, with a capacity of 40 cubic yards per hour, a portable digger that can do 'straight-down' digging to a depth of 11'!!! You get them all in the low-cost truck HOPTO. Just mount this completely hydraulic unit on any 1½ ton or larger truck that still runs but which may have been already completely charged off on your equipment inventory! Now you have a mobile Digger-Shovel-Crane with world-famous work capacity *and at the lowest possible equipment investment!*

The simple handling of HOPTO is quickly mastered by any handy man or utility man. Four hydraulic controls are conveniently banked in front of the operator who has unrestricted visibility of work at hand. Hydraulic stabilizers assure a firm loading platform, take weight of heavy lifting off the truck springs.

Crane boom is optional equipment, may be equipped with hydraulic control grapple. Backhoe and shovel buckets are available in a wide variety of sizes and designs for material handling and for digging, trenching and excavating in all types of soils.

CHOICE OF MODELS

All the outstanding features of the truck-mounted HOPTO are also available in other models to best fit your needs at lowest possible equipment investment. Self-powered trailer models, power take-off trailer type models and HOPTO units for rear mounting on track type tractors are available in addition to the two models shown.

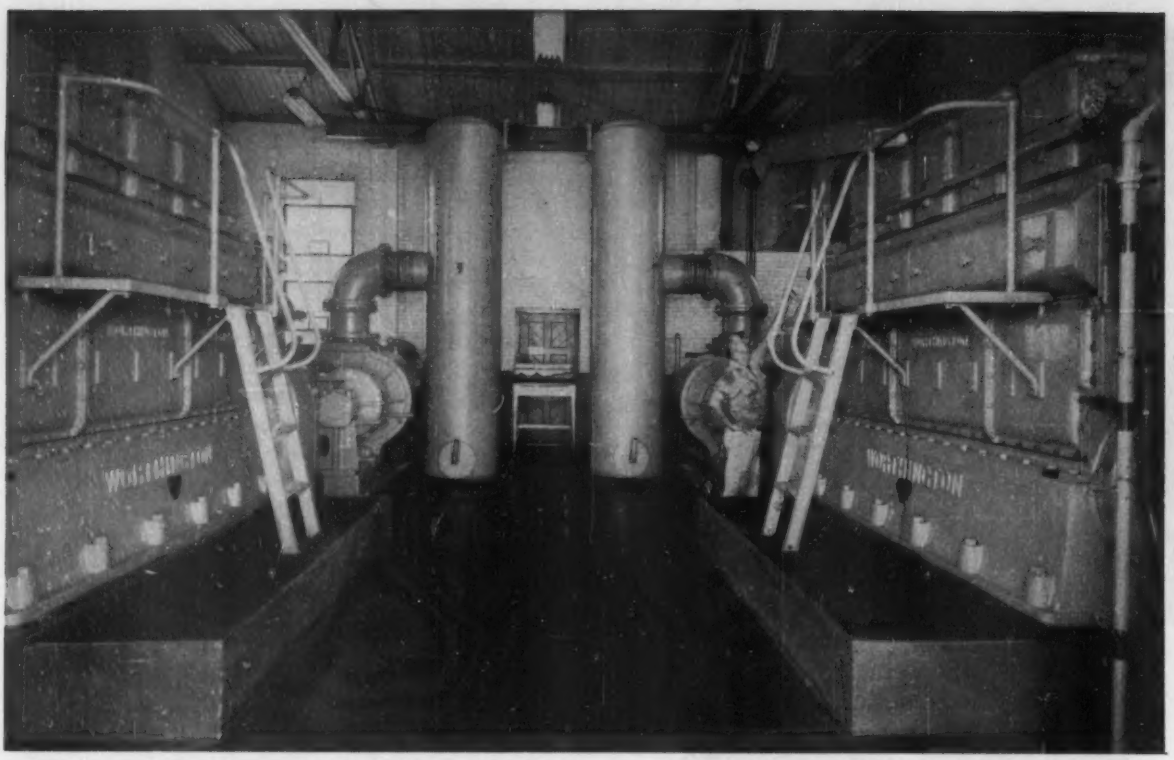
SELF-POWERED HOPTO UNIT

Model SPC HOPTO is a complete Badger-built unit powered by an MM 206-4A. Other power units can be furnished on request. Unit has a bearing pressure of only three pounds per square inch to permit uninterrupted operation in swampy or muddy soils. Comfortable seat for operator swivels for easy access to operating and driving controls. Extremly long reach permits all HOPTO models to work all of a thirty-two foot semi-circle without moving unit.

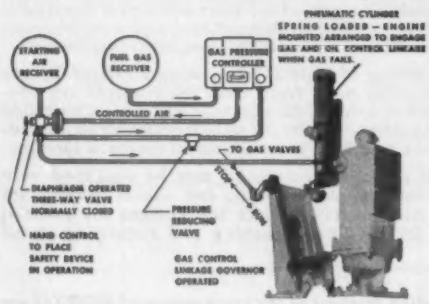
Write TODAY *for complete information and specifications of the HOPTO model that best fits your needs!*

BADGER MACHINE CO.

WINONA, MINNESOTA • DEPT. AC



ACTIVATED SLUDGE PLANT in Phoenix, Arizona gets low-cost power from these two Worthington dual-fuel engines which run on sewage gas, using a minimum amount of pilot oil.


PNEUMATIC CYLINDER
SPRING LOADED — ENGINE MOUNTED ARRANGED TO ENGAGE GAS AND OIL CONTROL LINKAGE WHEN GAS FAILS.
STARTING AIR RECEIVER
FUEL GAS RECEIVER
GAS PRESSURE CONTROLLER
CONTROLLED AIR
TO GAS VALVES
DIAPHRAGM OPERATED THREE-WAY VALVE NORMALLY CLOSED
HAND CONTROL TO PLACE SAFETY DEVICE IN OPERATION
PRESSURE REDUCING VALVE
GAS CONTROL LINKAGE GOVERNOR OPERATED

WORTHINGTON'S NEW "AUTOMATIC FUEL SWITCHER" used on Worthington dual-fuel engines eliminates shutdowns due to fuel gas interruptions or failures. When gas pressure drops below normal, or fails completely, the Automatic Fuel Switcher instantly and automatically changes the engine over to 100% fuel oil.

The fuel switcher closes the gas metering valves instantly and simultaneously shifts linkages that place the fuel pumps under control of the governor at the required setting for the load at that moment. There is no hunting of the governor when the engine goes over to 100% fuel oil.

Sewage gas runs these engines

• In treating sewage, many cities have the help of a receiving stream to provide some purification of the liquid-borne wastes by the diluting action of the water.

Phoenix, Arizona, also has a receiving stream, the Salt River, but gets no beneficial diluting action since the entire flow of the Salt below Phoenix consists of effluent from the sewage treatment plant.

Naturally, a situation like this demands really thorough sewage treatment — and the best in equipment.

To supply the motive power for two large blowers, Phoenix's engineers selected two Worthington dual-fuel engines. And they put their sewage gas to work by using it as fuel for these dependable Worthington engines. You might say that this sewage plant is almost running itself.

Operating records of sewage treatment plants everywhere show that you just can't beat Worthington dual-fuel engines as economical, dependable drives for blowers, pumps and generators. Drop us a line and find out for yourself about Worthington's new "Automatic Fuel Switcher", which automatically changes over to 100% fuel oil when the gas pressure drops below normal.

Worthington Corporation, Engine Division, Section E.3.10, Buffalo, New York.

E3.10

WORTHINGTON

Economical, Continuous Power — Oil and Dual-Fuel Diesels, and Spark-Ignition Gas Engines, from 190 to 2100 bhp.

LARGE BOULDERS NO PROBLEM

FOR "*Flexibles*" AT SANDFORD, MAINE

From Sandford, Maine, to San Diego, California—from Seattle, Washington, to Miami, Florida, "Flexible" Equipment provides the answer to general and specific sewer-cleaning problems.

Sandford, Maine, for example, has been buying "Flexible" pipe-cleaning tools since 1936. Here one of the principal problems is bringing out large boulders that clog storm drains. And here is photographic "proof positive" that "Flexible" Bucket Machines get them out.

This photograph was taken some years ago. Since then "Flexible" Bucket Machines have been importantly modernized and improved in line with our constant study of sewer-cleaning needs and advanced engineering methods. We invite an "on the job" demonstration.

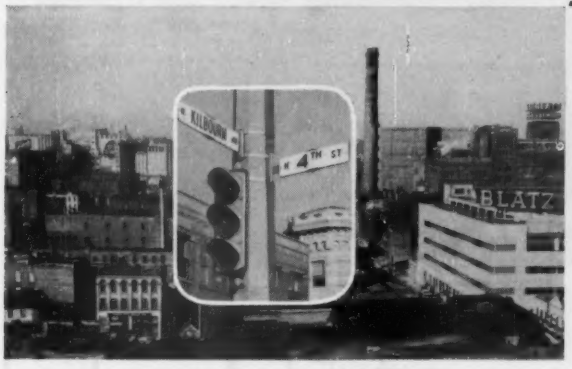
Write for our **FREE** *Catalog*

Flexible **SALES CORPORATION**

3786 Durango Ave., Los Angeles 34, Calif.

(DISTRIBUTORS IN PRINCIPAL CITIES)

AMERICA'S LARGEST LINE OF PIPE CLEANING TOOLS AND EQUIPMENT



"SIGNS IN THE SKY"

Among many noteworthy things, Milwaukee is famous for its beer. Brewery signs are highly visible on the skyline, by day or night. Readily seen, too, are the easy-to-read street signs that mark Milwaukee's thoroughfares.

In many interesting locations you'll find FERRO signs . . . visible day or night; permanent porcelain enamel fused on finest steel.

On any street, road or highway, FERRO is the sign of good government. For full details, write:

FERRO ENAMELING CO.

1100 Fifty-Seventh Avenue **Oakland 21, California**

There's a Patented SUNFLOWER GANG LAWN MOWER for Every Job!

Cut Mowing Costs

LOW PRICED Models for ALL Tractors

Proved Throughout the Nation and in Many Foreign Countries.

Many Exclusive Patented Features.

ROTARY CUTTERS for ALL Tractors also the Exclusive KUB KLIPPER

Modern Design

Proved Superior Performance

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Fully Guaranteed

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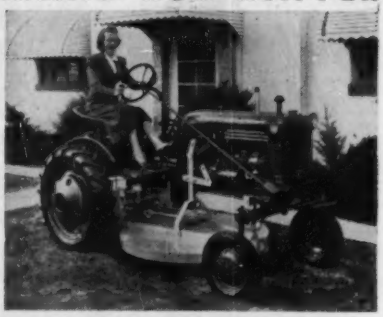
Catalog — New Low Prices

Write Today!



SUNFLOWER INDUSTRIES, INC.

103 So. Kansas Ave. **Olathe, Kansas**

attention civil defense chiefs!

MODERNIZE YOUR

TYPICAL APPLICATIONS OF THE BENJAMIN SIREN

for civil defense

for boiler alarms

for plant protection

WARNING SIGNAL SYSTEM

with this NEW extra-compact powerful

BENJAMIN SIREN!

This new siren is especially designed for modern multiple-signal installations, which overcome problems of atmospheric conditions, wind direction and industrial din. A small-yet-powerful high-torque, 10,000 r.p.m. motor and precision-machined housing makes possible extra-compact design. Famous Benjamin built-like-a-battleship construction prevents moisture from entering and assures long, trouble-free operation.

It's the 20th Century Pony Express!

FREE SIGNAL BOOK! Send for your copy of this most complete book on signaling! Benjamin Electric Mfg. Co., Dept. At, Des Plaines, Ill.

600 CD

LONGER RANGE—TARGET VALUE FOR YOUR HIGHWAY TRAFFIC SIGNS WITH GROTELITE REFLEX REFLECTIVE SHEETING

Grotelite REFLECTIVE SHEETING

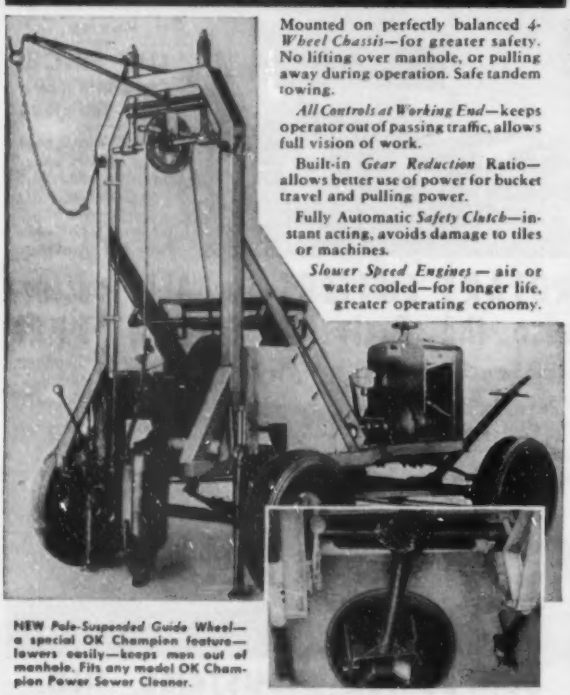
SMOOTH S S SURFACE

This highly reflective, smooth surface reflex reflective sheeting makes a smashing, attention-compelling sign with longer range target value and full range legibility. Easily read night or day. The smooth, durable, self-cleaning surface can be screened, sprayed or brushed. It is easy to apply and makes the best long life, economical signs and markers. Available in sheets and completed signs.

THE Grote MANUFACTURING CO., Inc.
GROTE SQUARE - BELLEVUE, KY.
(Established 1901)

Complete Line of Embossed Metal Traffic Signs, Reflectors and Street Name Plates

OK CHAMPION POWER SEWER CLEANERS



Mounted on perfectly balanced *4-Wheel Chassis*—for greater safety. No lifting over manhole, or pulling away during operation. Safe tandem towing.

All Controls at Working End—keeps operator out of passing traffic, allows full vision of work.

Built-in *Gear Reduction* Ratio—allows better use of power for bucket travel and pulling power.

Fully Automatic *Safety Clutch*—instant acting, avoids damage to tiles or machines.

Slower Speed Engines—air or water cooled—for longer life, greater operating economy.

NEW *Pole-Suspended Guide Wheel*—a special OK Champion feature—lowers easily—keeps men out of manhole. Fits any model OK Champion Power Sewer Cleaner.

Write for latest OK Champion Circular

CHAMPION CORPORATION • 4716 Sheffield Ave. • Hammond, Ind.

Public Property PROTECTION is our business

For your protection Stewart produces chain link wire and iron picket fence; wire mesh partitions; wire window guards; steel folding gates. Also flagpoles; settees; bronze plaques and other metal specialties. Write for catalogs. Please mention products in which you are especially interested.

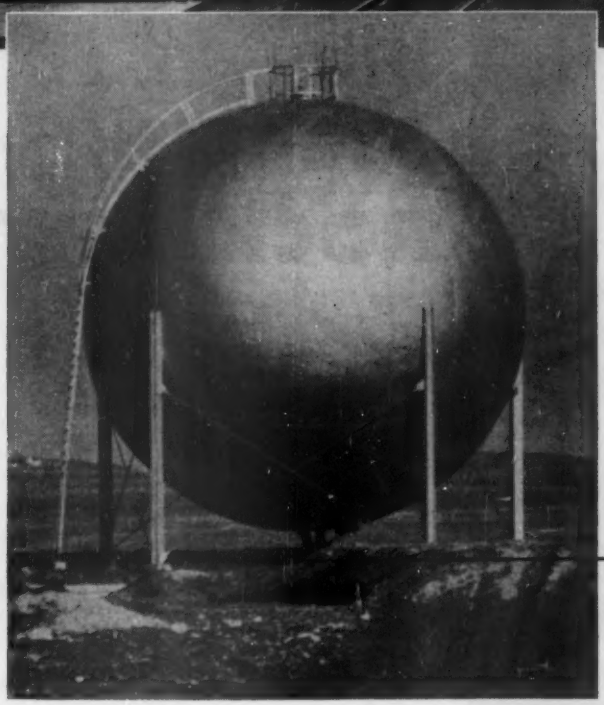
THE STEWART IRON WORKS CO., INC.
2121 Stewart Block, Cincinnati 1, Ohio
Experts in Metal Fabrications since 1886

No. 370 Settee

Wire Mesh Partitions

Stewart IRON and WIRE FENCES

For digester gas storage



PITTSBURGH •DES MOINES *Pressure Spheres*

IN DISPOSAL PLANT SERVICE

Efficient storage of digester gas in sewage plant operations is provided by Pittsburgh-Des Moines Pressure Spheres. Of unique Icosaphere® design, these modern vessels are more economical to construct, and consequently lower in cost to the purchaser. Let us present the facts and quote on your requirements.

PITTSBURGH•DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

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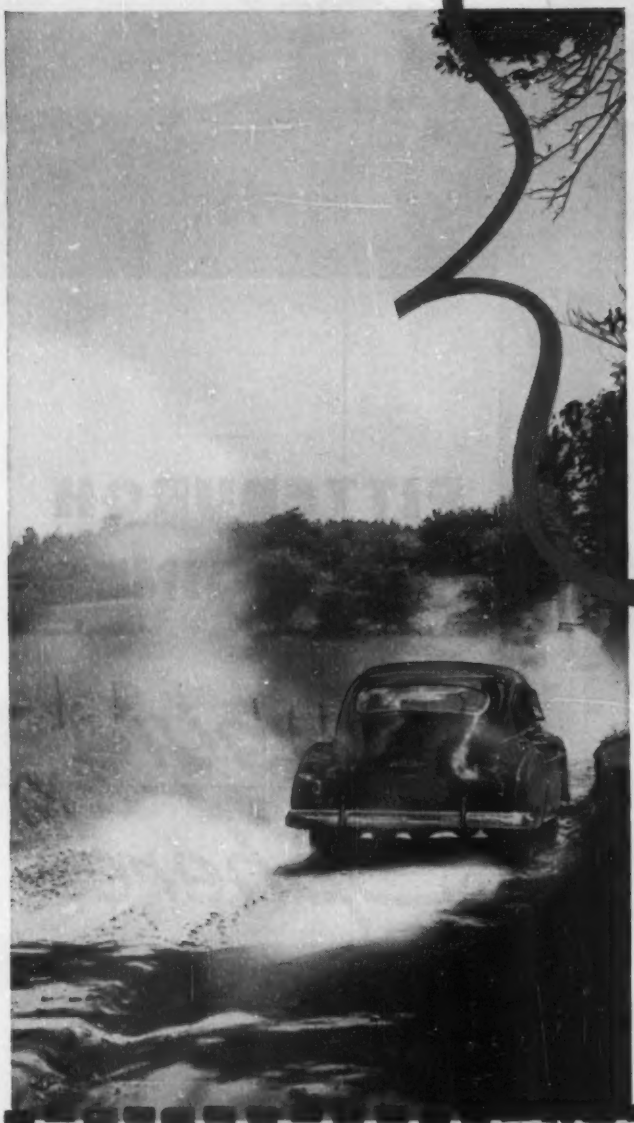
CHICAGO (3), 1216 First National Bank Bldg.
LOS ANGELES (48), ... 6399 Wilshire Blvd.
DES MOINES (8), 913 Tuttle Street
DALLAS (1), 1217 Praetorian Bldg.
SEATTLE . . . . . 520 Lane Street
SANTA CLARA, CAL., 619 Alviso Road

Stop Dry Weather "Wear Off" of Materials with STERLING ROCK SALT



Keep Summer Roads Hard, Dense, Tight and Stable!

Proper stabilization with STERLING ROCK SALT and clay gives road wearing surfaces the flexibility to adapt themselves to the weather—hot or cold, wet or dry. For rock salt is Nature's own soil stabilizer.

In hot, dry weather, STERLING ROCK SALT rises, crystallizes—and firmly "anchors" the clays and fines at the wearing surface. That's why, even after prolonged dry spells, a Sterling stabilized road will show a tough, firm surface.

So don't let a lot of your work and the taxpayer's money go up in dust this summer. Prevent the loss of surface materials—and the extra repair and maintenance that follows in the wake of summer dust clouds on unstabilized roads.

INDUSTRIAL DIVISION, DEPT. AC-7
INTERNATIONAL SALT COMPANY, INC., SCRANTON 2, PA.

☐ Please send Road Stabilization literature.
☐ Please have representative call.

Name_____

Company_____

Street_____

City_____ Zone_____ State_____

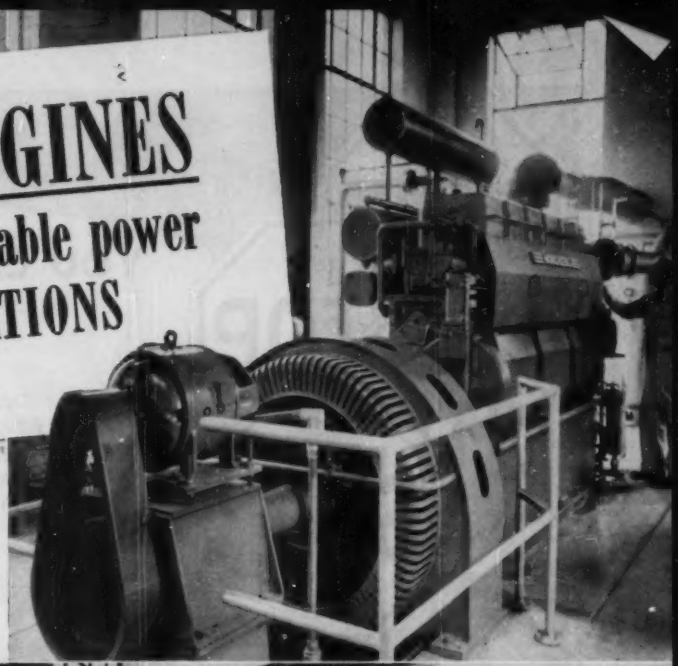
Plan now to stabilize with STERLING ROCK SALT. For information on up-to-the-minute methods—old roadbeds or new construction—fill out and mail the coupon at left.

INTERNATIONAL SALT CO., INC.
INDUSTRIAL DIVISION
Scranton, Pennsylvania

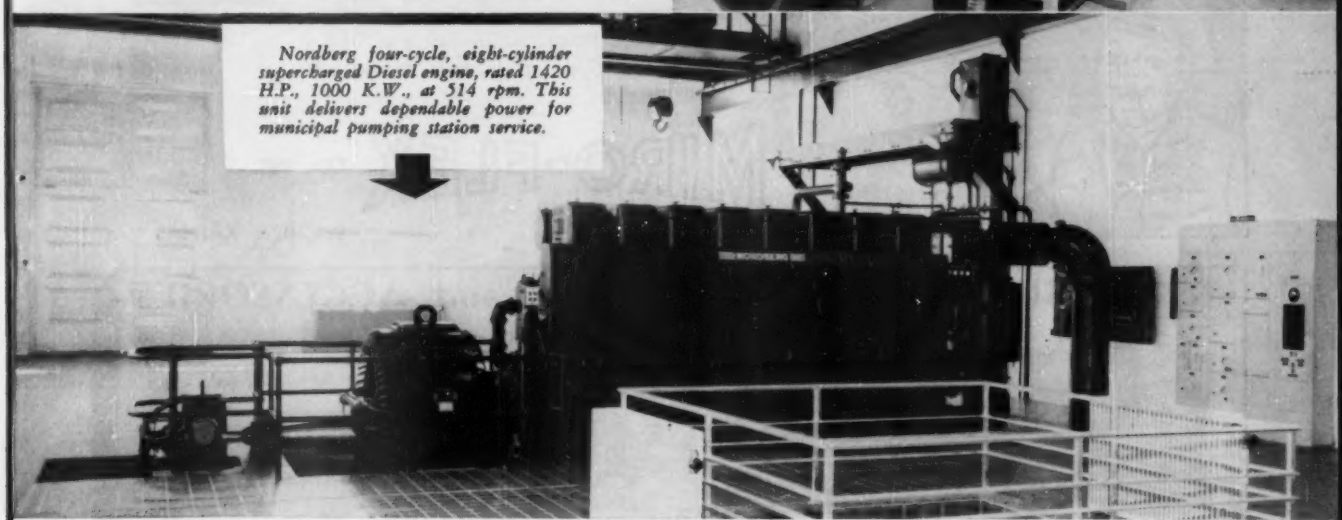
STERLING ROCK SALT
"Nature's Own Soil Stabilizer"

NORDBERG ENGINES

furnish low cost, dependable power for PUMPING STATIONS



Nordberg four-cycle, six-cylinder Duafuel® engine rated 375 H.P., 250 K.W., at 600 rpm. This unit, operating on natural gas, powers two motor-driven centrifugal water pumps.



Nordberg four-cycle, eight-cylinder supercharged Diesel engine, rated 1420 H.P., 1000 K.W., at 514 rpm. This unit delivers dependable power for municipal pumping station service.

WHEN it comes to furnishing reliable, low cost power for municipal and industrial pumping operations, Nordberg engines have been thoroughly job-tested and proved in numerous installations in many parts of the world. Two typical Nordberg Diesel Engine Generator units are shown here, each providing the necessary power to keep electrically-driven water pumps on the job, day-in, day-out.

Built to provide the most economical power plant with low first cost as well as low operating costs, Nordberg engines will efficiently burn Diesel fuel, natural gas, or any combination of both—as well as sewage gas, manufactured gas and propane. With this wide fuel selection Nordberg can furnish the most efficient unit to meet specific power requirements . . . for pumping applications and for main or stand-by-power in almost every class of service.

Nordberg, as builders of America's largest line of heavy duty engines, in sizes from 10 to over 10,000 H.P., backed by over a half century of specialized machinery building experience, can give you valuable assistance in solving *your* particular power problem. Call or write for further information. *Nordberg Mfg. Co., Milwaukee, Wis.*

NORDBERG

DIESEL • DUAFUEL® AND SPARK-FIRED GAS ENGINES

P554

YOU CAN DEPEND ON SIGNS BY MIRO-FLEX

Miro-Flex Stop Signs Are Now Available in Black on Yellow or White on Red, Plain or Reflectorized.

Miro-Flex signs are a sure sign of efficient traffic control and safety. There's dependability stamped into every Miro-Flex sign which assures you that both motorists and pedestrians know *"what you mean."* It's America's finest sign line . . . municipalities, governing bodies and industry have relied upon Miro-Flex for years to supply signs of every nature . . . from street name assemblies and stop signs to highway markers and special-made signs. All Miro-Flex signs conform to standards of the United States Public Roads Administration.

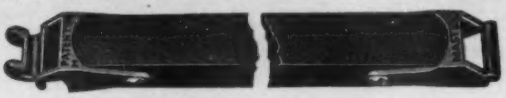
Write for Your Free Copy of "Signs by Miro-Flex"

THE MIRO-FLEX CO., INC.

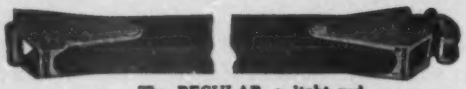
1824 EAST SECOND ST. WICHITA, KANSAS

SURE GRIP SEWER RODS and ACCESSORIES

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



The MASTER, a heavy duty rod, Fir stock 1⅛ x 1⅛ inch square.



The REGULAR, a light rod, Fir stock 1¼ x 1¼ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.

NAPPANEE, IND.

Is Your City Up-to-Date in Its Operation Methods?

THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

Please send me ..... copy (copies) of your Municipal Official's Handbook (Price per copy is $3.00)

A check covering this order is enclosed ..... Please bill me ..... (Check one)

Name .....

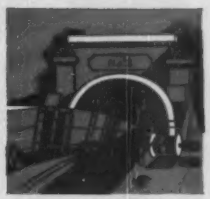
City or Company .....

Address .....

City..... Zone..... State.....

A good way to find out is to read about the practical experience of other city officials who have problems like yours. This experience is described in the "Municipal Official's Handbook" by William S. Foster, Engineering Editor of *The American City*. The latest methods on street construction and maintenance, snow removal, street cleaning, and refuse collection and disposal are explained in detail. Write us today for your copy.

AN INTEGRATED OPERATION FOR THE PRODUCTION OF CAST IRON PRESSURE PIPE



Ore and Coal Mines

Coke Ovens

Blast Furnaces

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Pipe Installations

U.S. cast iron PIPE

FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

United States Pipe and Foundry Company has recently attained a goal long planned-for: complete and undivided control of every step in the production of basic raw materials that go into the making of U. S. Cast Iron Pipe.

This means ownership of *mining* operations (coal and iron ore)—*quarrying* operations (limestone)—*coking* and *blast furnace* operations—for the production of pig iron.

In addition to being able to control the quality of pipe-making raw materials at their sources, our Quality Control of pipe production gives further assurance to customers that the quality level of U. S. Cast Iron Pipe is in excess of standard specifications. Our pipe is produced to *our own* quality control specifications, more exacting than the established specifications under which cast iron pipe is normally purchased.

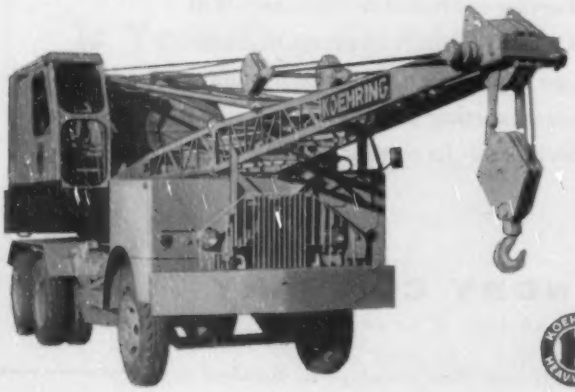
U. S. PIPE & FOUNDRY COMPANY

GENERAL OFFICES: BIRMINGHAM 2, ALABAMA

A wholly integrated producer . . . from mines and blast furnaces to finished pipe.

Check WORK CAPACITY of this

Koehring ½-Yard 10 to 15-TON 205



With its 10 tons of lift capacity on crawlers, Koehring 205 has plenty of power, strength and stability to handle ½ to ¾-yard dragline and clamshell buckets on a wide work radius. Boom lengths on the 205 crawler crane range from 30 to 50 feet.

Where rubber-tired mobility is needed, the 205 is available on truck mounting. This gives you the *plus* advantage of 15-ton lift capacity, and 32½ m.p.h. travel speeds for your dragline, clamshell and lift crane work. Truck-mounted 205 has 25 to 55-foot boom lengths (plus extra reach of maximum 30-foot jib.) On rubber or crawlers, the 205 readily converts to ½-yard shovel or hoe.

Before you invest in any excavator or crane, look into this Koehring 10 to 15-ton 205. You'll find it gives you a big *plus* in WORK CAPACITY over other machines in the ½-yard class. Meanwhile, read about its big 20" clutches, antifriction power-flow, automatic traction brakes, and other heavy-duty features in new 205 bulletin. Ask your Koehring distributor for a copy, or write to us.

KOEHRING HEAVY DUTY

KOEHRING COMPANY • MILWAUKEE 16, WIS.
Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

CK462

Digs trench at rate of 17½ feet per minute

Combining wide work range with precision grading accuracy, Parsons 202 wheel-type Trenchliner® assures fast, low-cost completion of municipal gas and water systems, drainage, and other utility trenching projects. Take a look at its multiple digging feeds, widths and depths:

30 digging feeds, from 5.9 inches to 17.5 feet per minute, give maximum trench production at every depth, width, and in all soil conditions. There are 15 cutting widths from 13 to 31 inches. Maximum digging depth is 6 feet. Heavy-duty digging wheel is equipped with either square or round-bottom buckets. Quick-change bucket fronts have cutting lips, or "Tap-In" teeth to suit wet or dry digging conditions.

Specified grades are easy to maintain because digging wheel responds instantly to friction-clutch control. Dual-purpose clutch drives the digging wheel, and acts as an automatic safety to protect against shock loads. Shiftable, reversible belt conveyor discharges excavated material to either side of Trenchliner.

Your Parsons distributor has more information on this 202 Trenchliner that will interest you. See him or write us. Other sizes include both wheel and ladder-types (full crawler mounted), and rubber-tired Trenchmobile®.

PARSONS COMPANY • NEWTON, IOWA
(Koehring Subsidiary)

11-S does on-the-spot mixing anywhere around town

Here's the 2-bag concrete mixer for scattered city jobs. Portable, smooth-trailing, this Kwik-Mix 11-S Dandie® is available as a 2-wheel mixer mounted on heavy coil springs . . . and on 4 wheels, with automotive type steering on front axle. Quickly moved around town, it speeds maintenance on streets, sidewalks, driveways, curb repairs. 11-S has wide, power-raised skip, selective skip shaker, double mixing action. You get consistent quality, batch after batch. Automatic water-measuring system gives fractional-pint accuracy. Batchmeter automatically controls mixing time. Tilted Flow-Line chute discharges full batch in 7 seconds. Tower attachment is available for overhead discharge. Other sizes, 3½ to 16-S. Also: 10, 14 cu. ft. bituminous mixers.

NEW 15 cu. ft. MOTO-BUG®

For hauling and pouring concrete, or moving any heavy loads on street, highway, airport, park, cemetery maintenance, Kwik-Mix offers you 2 sizes of Moto-Bugs: 8 3 h.p. model (left) with 15 cu. ft. hopper, interchangeable 1-ton platform . . . and a 6 h.p. Moto-Bug (above) with 10 cu. ft. hopper, ¾-ton platform, and ½-ton fork lift attachment.

KWIK-MIX COMPANY • MILWAUKEE 16, WIS.
(Koehring Subsidiary)

FOR 100 YEARS

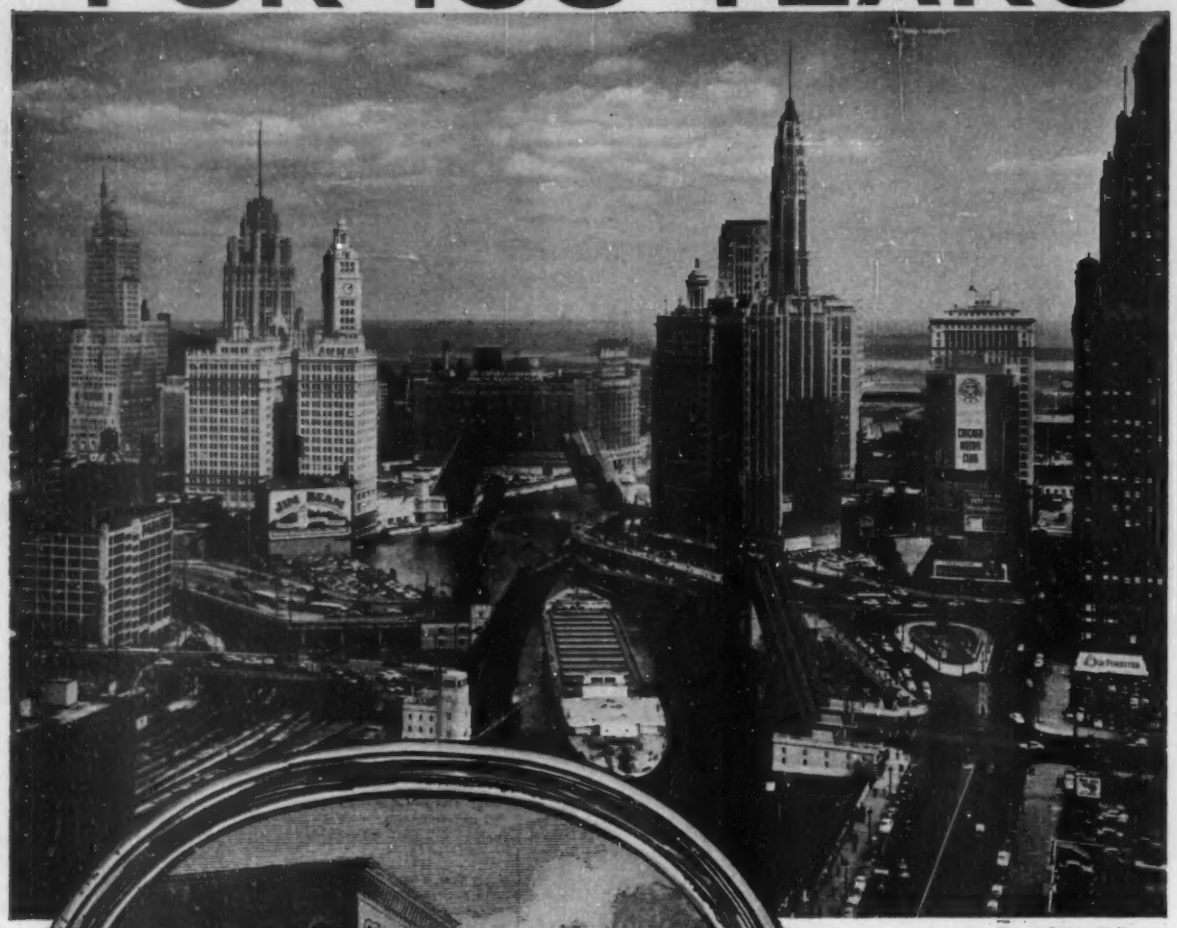


Photo: Ewing Galloway

This is Chicago, second largest city in the U. S. A.—population over 3½ million.

Print: Bettmann Archive

A view of Lake Street, Chicago, as it looked 100 years ago.

MODERNIZED **cast iron**

they've been coming back for more...

CHICAGO installed cast iron water mains 100 years ago... and installs them today!

Chicago's skyline has changed magically in a century but the underground lines that transport water are still cast iron. Nearly 100% of her water distribution system consists of cast iron pipe. This city of "magnificent distances" has over 4,000 miles (21 million feet) of cast iron mains, supplying more than one billion gallons of water per day to a population approaching four million.

Section of a century-old cast iron main still serving in Chicago's vast water distribution system.

A famous jurist defined *good will* as the "probability of the customer's returning to the old stand." Chicago's Water Department has been coming back for more cast iron pipe for 100 years. That's good will—yes—built on proved performance. Chicago has century-old cast iron pipe in its water distribution system.

Cast iron pipe has been a rugged, long-lived product from the earliest days. Today's *modernized* cast iron pipe, centrifugally cast, is even stronger, tougher, and more uniform in quality. And, where needed and specified, it is centrifugally lined with cement mortar to assure sustained carrying capacity throughout the long life of the pipe.

Cast Iron Pipe Research Association,
Thos. F. Wolfe, Managing Director,
122 So. Michigan Ave., Chicago 3.

CAST Q IRON

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

pipe FOR MODERN WATER WORKS OPERATION

THE CITY OF CEDAR RAPIDS LOADS

360 YARDS IN *60* MINUTES

WITH AN ATHEY 125 HILOADER

To build a new street, the City of Cedar Rapids, Iowa, had to take out 18" of dirt from the roadway. Two Cat Motor Graders bladed the material into windrows and then the city's Athey 125 HiLoader moved in to load out the excess dirt. Five trucks were assigned to haul the dirt and the 125 kept the haulers running in high gear. The 6 cu. yd. trucks were heaploaded in an average of 50 seconds and more than 360 yards had been moved in an hour.

Cedar Rapids' HiLoader keeps a steady flow of dirt going into the trucks. John Storey, City Street Commissioner, is making full use of the HiLoader's talents—cleaning snow from streets, loading stockpiled materials, street construction—working the year 'round.

How the HiLoader Puts Loading on a Mass-Production Basis . . .

- Capacity limited only by material to be loaded—up to 10 cu. yds./min. in loose materials, 25 cu. yds. in snow.
- 96" width of gather to pick up the widest windrow!
- Augers pull in full width!
- Full-floating feeder follows contour of windrow—prevents bulldozing and build-up!
- Clean pick-up—one pass leaves smooth, clean roadway . . . subgrade is not disturbed!
- Loading speeds from 0.3 to 4.0 MPH . . . travel speeds to 20.0 MPH!
- Discharge conveyor swings 45° to either side of center (55° with optional 18' conveyor) to eliminate truck maneuvers!
- Additional facts on the HiLoader are yours for the asking. Write today!

Athey

PRODUCTS CORPORATION

5631 West 65th Street • Chicago 38, Illinois

Meet the New

MICRO-TWIN

a new microfilm RECORDER + READER in one unit!

Here is a unique combination microfilm recorder and microfilm reader within the reach of all!

The new Micro-Twin with 37 to 1 reduction ratio (available with 24 to 1 reduction for hard-to-read material) provides 8-mm. photography on 16-mm. film for maximum film economy . . . handles documents up to 11 inches wide . . . records fronts and backs simultaneously, or fronts only. As many as 74 check-size or 29 letter-size documents can be recorded, complete, *for just one cent!*

Now, *you* can benefit from modern microfilming. Meet the new Micro-Twin personally at your nearest Burroughs branch. Burroughs Corporation, Detroit 32, Michigan.

**Available as an optional feature.*

Bell & Howell MICROFILM EQUIPMENT — SOLD AND SERVICED BY Burroughs

COMPACT—Space-saving Micro-Twin is safe and comfortable to operate on a table or with attractive desk-high matching stand.*

FAST—New Acro-Feeder* handles intermixed documents automatically and accurately as fast as the operator can supply them.

EASY VIEWING—Wide-vision reader shows sharp images, actual document size, and produces distinct, full-size facsimile prints.

SIMPLE—Locate documents quicker than ever with exclusive indexing meter — provides 999 index points per 100 feet of film.

Wherever there's business there's **Burroughs**

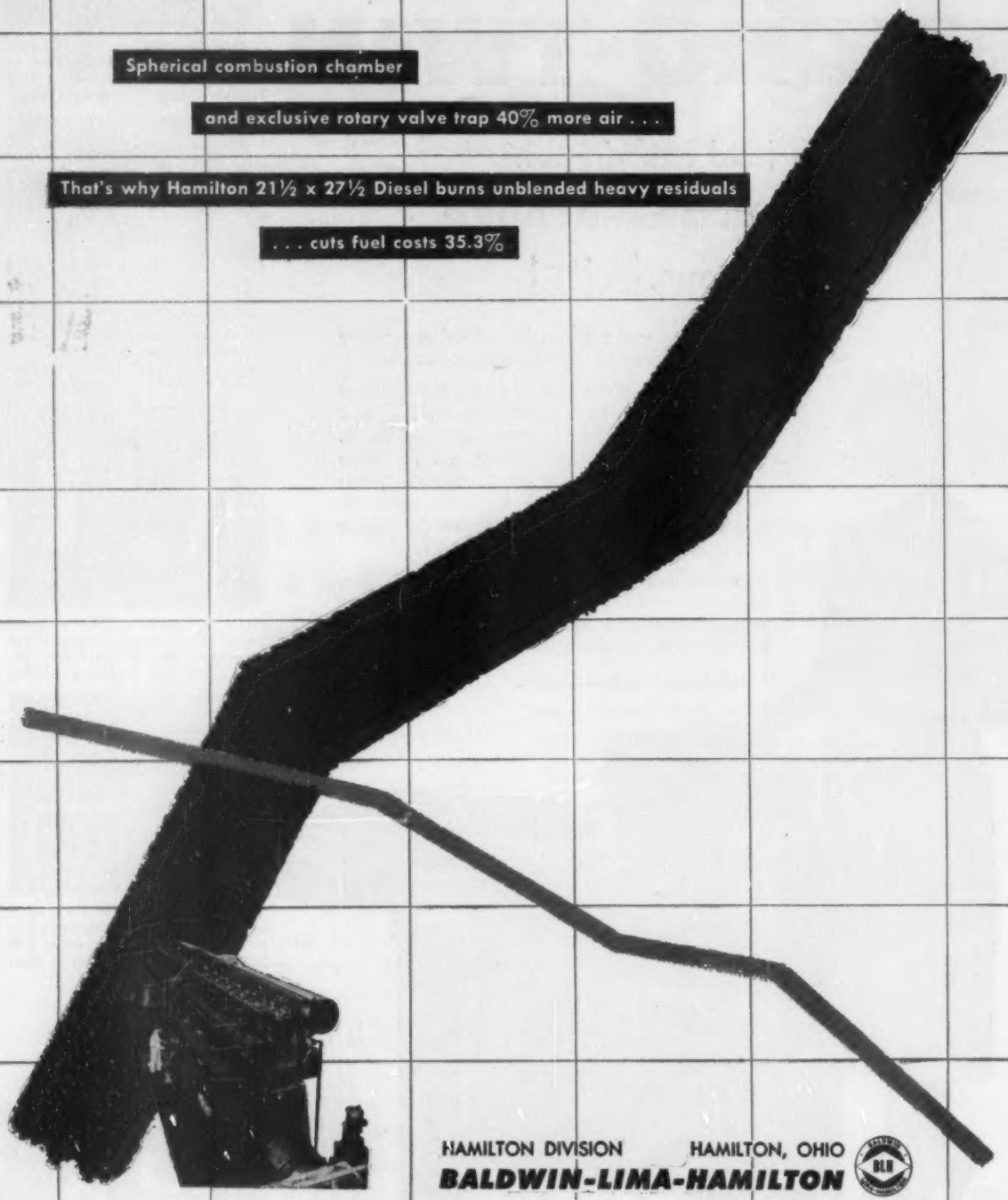
Burroughs

Spherical combustion chamber

and exclusive rotary valve trap 40% more air . . .

That's why Hamilton 21½ x 27½ Diesel burns unblended heavy residuals

. . . cuts fuel costs 35.3%



HAMILTON DIVISION HAMILTON, OHIO

BALDWIN-LIMA-HAMILTON

MUELLER®

Prevents corrosion!

use this Corporation Stop with Insulating Coupling Outlet!

Designed for a specific need, this Corporation Stop with Insulating Coupling Outlet minimizes electrolytic action and subsequent corrosion by completely insulating copper service lines from the main.

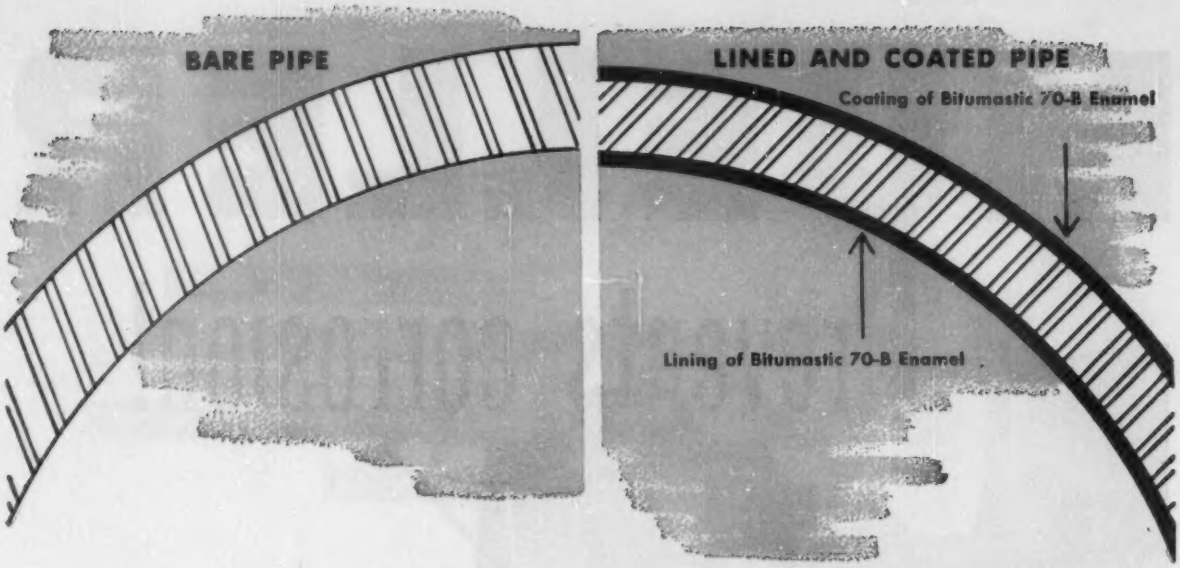
The Insulating Outlet Corporation Stop is easily installed in the main, under pressure, with the Mueller "B" Machine. Copper service pipe is flared with standard tools to prevent pull-out. Coupling needs only minimum tightening for a perfect seal.

Contact your Mueller Representative or write direct for details.

MUELLER CO.

Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS



It takes less wall thickness

when you protect steel pipe with Bitumastic® 70-B Enamel

BITUMASTIC 70-B ENAMEL—when applied to a thickness of approximately 1/32"—protects the exterior of pipe from the corrosive action of the soil in which it is buried. It is much more economical to use this protective coating than to specify pipe with greater wall thickness in order to allow for future corrosion.

For instance, if it were calculated that a 3/8" wall would provide sufficient structural strength for a given pipe line, it would be unnecessary to specify a 3/8" wall to compensate for corrosion. The use of Bitumastic 70-B Enamel would do away with the need for the additional 1/4" of steel—a substantial saving.

Besides specifying less wall thickness, you can use *smaller* pipe by applying Bitumastic 70-B Enamel to the interior. A spun lining of this coal-tar base Enamel *keeps* flow capacity high. So you don't have to buy *over-sized* pipe to allow for future "shrinkage" due to tuberculation and incrustation.

Give your community this two-way savings on your large-diameter water lines by specifying strong, durable steel pipe, lined and coated with Bitumastic 70-B Enamel. If you wish, we will handle the entire coating job for you. Write to us for full information.

BITUMASTIC PROTECTION 100TH Anniversary 1854 1954

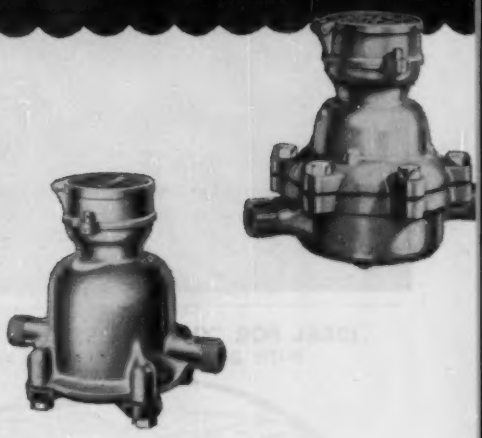
KOPPERS BITUMASTIC ENAMELS

KOPPERS COMPANY, INC., Tar Products Division, Dept. 722-T, Pittsburgh 19, Pennsylvania

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.

Water is vital...

BADGER meters conserve it BETTER!



SANITATION is so vital to life that a city of three-quarters of a million people actually uses 134,000,000 gallons of water daily! In thousands of communities, famous Badger meters make certain that homes and industrial projects get their fair share of the supply . . . pay only for the water they use. Badger meters measure water precisely . . . help eliminate waste . . . make water departments more efficient and self-supporting. And, as waterworks men verify, Badger meters do the job dependably . . . serve for years with little or no attention.

BADGER Water Meters

Badger Meter Mfg. Co.
Milwaukee 45, Wisconsin

"Measures the water of the world"

GOLDAK makes the world's finest LOCATORS

THE *Dualtronic* COMBINATION
PIPE & LEAK DETECTOR

The "Dualtronic" is acclaimed by Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two so efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic" is the answer how to cut costs 50%!

Lightweight! Rugged!

GOLDAK

FEATHERWEIGHT MODEL 87
PIPE LOCATOR

Guesswork eliminated. Pinpoint location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs.! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance.

Write for FREE literature!

The GOLDAK Company
Leading Makers of PIPE LOCATORS
Since 1933

1544 W. GLENOAKS BLVD.
GLENDALE 1, CALIFORNIA

IDEAL FOR "OFF THE STREET" PARKING
WITH OR WITHOUT PARKING METERS

SALIENT FEATURES OF HAR-BAR BARRIERS

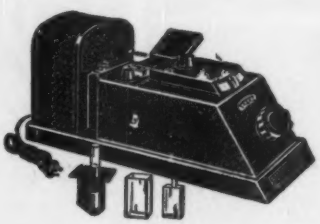
1. High enough to stop your car.
2. Low enough to clear your bumper guards.
3. Barrier is above ground—no drainage problem.
4. Barrier is above ground—no rotting of wood.
5. Automatically spaces your cars.
6. Follows contour of your ground.
7. Easily installed—just line up and drive the anchor pins.
8. Easily moved—just pull the anchor pins.
9. Easy to clean under.
10. Easy to maintain.
11. Installed on any kind of surface—black top, cement, macadam, gravel or cinders.
12. It really dresses up your parking lot.
13. You always stop against your tire—no shock.
14. All Castings are aluminum—no rusting.

Send us a plot plan of your parking lot—we do the engineering free.

HARRIS - BARRIER INC. 5407 N. PENNSYLVANIA STREET INDIANAPOLIS 5 — INDIANA

KLETT SUMMERSON
ELECTRIC PHOTOMETER

Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.
179 East 87th Street **New York, N. Y.**

a new PAYLOADER®

LOOKS THE SAME... BUT DOES MORE WORK

Four-wheel-drive • Torque converter • 4-speed, full-reversing transmission • Power-steering • Hydraulic brakes Quick tip-back bucket • Automatic bucket positioning.

MODEL HRC

CAPACITY
1 CU. YD. STRUCK-LOAD
1⅓ CU. YD. PAYLOAD

HERE IS THE FINEST tractor-shovel for its size ever built. It has undergone extensive field testing that proves it is without equal in work output, versatility, ruggedness and ease of operation. Its unique combination of torque converter drive and Hough four-speed, full-reversing transmission provides "just-right" speeds, forward and reverse, for every job — plus smooth, shockless power flow at all times.

Your "PAYLOADER" Distributor is eager to explain ALL the advantages of the Model HRC and show what it will do for you.

THE FRANK G. HOUGH CO.
Libertyville, Illinois

Please send me more information on the new HRC

NAME.....

TITLE.....

COMPANY.....

STREET.....

CITY.....STATE.....

☐ Please have Distributor call
☐ Send information on all seven PAYLOADER models

PAYLOADER®
THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.

710

BITUMULS® is used with confidence

THIS PICTURE tells a story that has deep significance for Roadbuilders everywhere. It shows a group of our Field Engineers attending a "class" that is being held at our training Laboratory.

The group contains men of varying ages, some with long service with our company; others with very few years behind them. Engineers all, they are here for a program of education and re-education. This we maintain to keep all of our men informed on the latest techniques in asphalt paving.

From all over the nation, factual jobs, reports, specifications, motion pictures, slide films, and photos—are gathered and sent for instructional use at this information center. At regular intervals, groups of our Field Engineers attend this "school." They then return to their own areas with newest information on the application of ours and other products.

The reason for this program is simple: we want you, the Roadbuilder, to be able to accept the word of our Field Men with confidence; because it is only in terms of his ability to serve you that the worth of our products can be measured.

There's a Bitumuls Field Engineer working out of an office near you. Call him anytime that you feel he can be of service.

Ask for our new booklets, "Bitumuls Surface Treatments and Penetration Pavements," and "Bitumuls for Maintenance."

AMERICAN Bitumuls & Asphalt COMPANY

200 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA

E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala.
Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La.
St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore.
Washington 5, D. C. San Juan 23, P. R.

WRIST-ACTION DIPPER GIVES NEW ANGLE TO TRENCH DIGGING, ADDS 50% MORE POWER!

Note how wrist action brings dipper mouth in "face-up" position — helps keep big loads from spilling. Wrist-action dipper is available in 18-in. and 12-in. dipper widths.

BUCYRUS-ERIE OFFERS another outstanding feature in dragshovel performance — the wrist-action dipper. Dipper is hinged at lower end of dragshovel handle and rotates in a vertical plane through an arc of 65 degrees, from a position 25 degrees ahead of handle to 40 degrees behind it.

Wrist action permits operator to vary the dipper's position so that dipper teeth bite into ground at best digging angle. You not only get bigger loads but also less spillage because dipper can be rotated to best carrying position. Wrist action provides these additional advantages, too:

1. Actual increase of 50% more power delivered at dipper lip — means up to 6 tons of tooth force.

2. The wrist-action Hydrohoe can dig a vertical wall or short, deep trenches (deeper than they are long) with virtually no hand work; dig column footings; cut trenches 12 to 24 inches wide by as much as 13 feet deep.

3. By working wrist action along with boom telescope, operator can pry out rocks and expose buried pipe with far less danger of pipe damage.

4. Wrist-action dipper rotates past stationary door providing automatic ejection of sticky materials — results in more and bigger payloads.

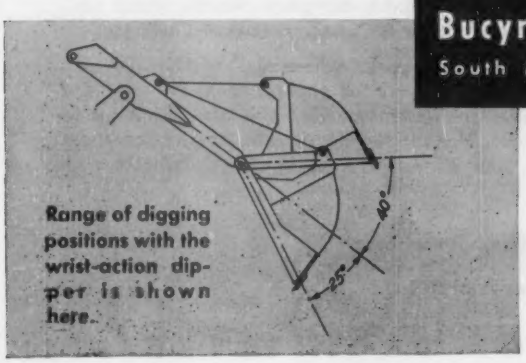
5. Over-all performance is improved by increasing power available at dipper. You have to see this wrist-action dipper in operation to see how it bites in and pries its way through tough clay. It's a real time and money saver.

BUCYRUS ERIE

QUICKLY CONVERTIBLE TO HYDROCRANE IN FIELD

The hoe boom is quickly convertible to crane front end right in the field. With telescoping crane boom this machine has proved outstanding for unloading and laying pipe. Owners say there's nothing like it on pipe handling work.

Get full details on the new Hydrohoe wrist-action dipper and the versatile Hydrocrane. Learn how attachments can be interchanged in minutes. Send coupon today.



Range of digging positions with the wrist-action dipper is shown here.

Bucyrus-Erie Company
South Milwaukee, Wisconsin

Gentlemen:
Please send me details on the new Hydrohoe ☐
Hydrocrane ☐

Name.....

Organization.....

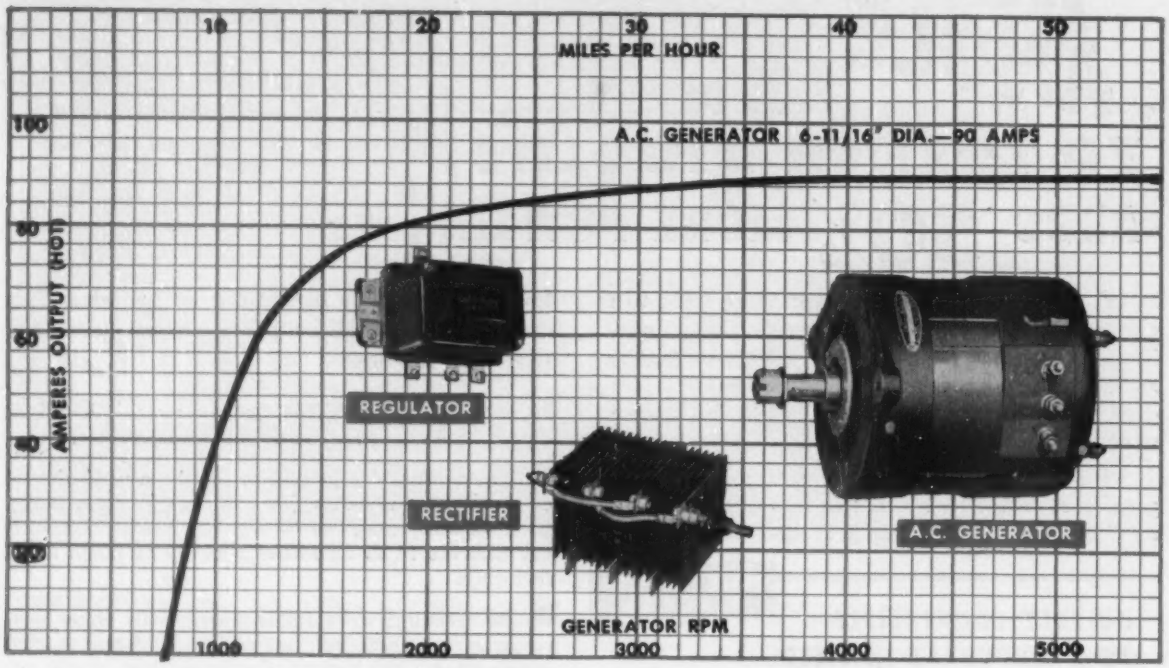
Address.....

City..... State.....

9H54

Power Packed and

HERE'S THE A.C. ANSWER TO EXTRA-HEAVY ELECTRICAL DEMANDS



DELCO-REMY

A. C. Generator, Regulator and Rectifier

Here's the answer for "problem" vehicles—Delco-Remy's new long-lived A.C.-D.C. charging system! It's specifically designed to meet the *extra*-heavy electrical demands of public utility trucks and other vehicles equipped with two-way radio, floodlights or any extra electrical units . . . ample current reserve picks up discharged battery quickly in operation. Delco-Remy A.C. generators are suitable for use at all engine speeds.

With output ranging from 30-40 amperes at curb idle and up to 90 amperes at higher engine speeds, the new Delco-Remy A.C.-D.C. charging system meets all electrical needs under the toughest operating conditions. Included in the new system is the A.C. generator, a matching regulator, and a rugged, dependable dry-plate rectifier which converts generator A.C. output to direct current.

Application packages complete with installation instruction sheets for popular makes of cars and trucks are now available. The conversion job is simple. For further details and application data, see your nearest United Motors distributor.

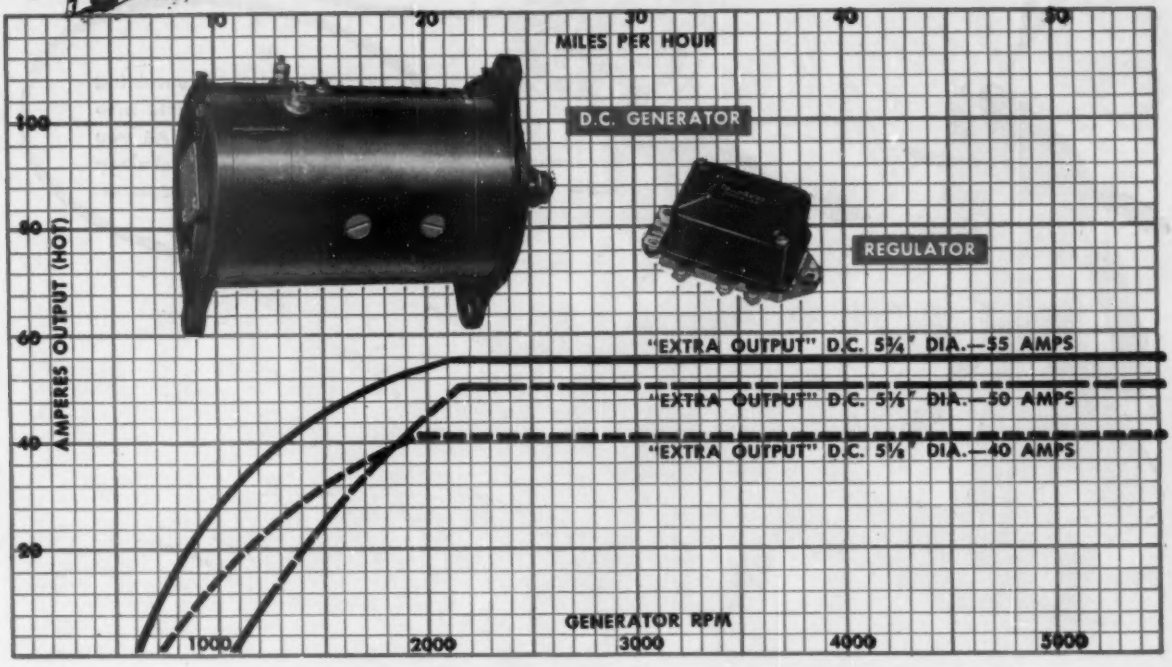
A GENERAL MOTORS PRODUCT — A UNITED MOTORS LINE

DISTRIBUTED BY WHOLESALERS EVERYWHERE

WHEREVER WHEELS TURN OR PROPELLERS SPIN

Right for the Job

HERE'S THE D.C. ANSWER TO HEAVY ELECTRICAL DEMANDS



DELCO-REMY

Extra-Output D. C. Generators and Matching Regulators

Delco-Remy extra-output D.C. generators are an economical answer to the electrical needs of public utility pickup or panel trucks as well as other vehicles with additional lights, two-way radios, or other special electrical equipment in medium to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain.

DELCO-REMY 40-AMP GENERATOR has low cut-in, about 7 mph, charges from 11 to 17 amperes at curb idle . . . full output about 18 mph —for vehicles customarily used in heavy traffic.

DELCO-REMY 50-AMP GENERATOR has slightly higher cut-in, about 11 mph . . . full output about 21 mph—for vehicles customarily operated at higher speeds, with minimum slow driving.

DELCO-REMY 55-AMP GENERATOR has very low cut-in, about 6 mph; charges at curb idle from 20 to 30 amperes . . . attains full output at 20 to 25 mph—for vehicles customarily operated at low speeds with added electrical loads, such as city taxicabs and police cars.

For further details and application data, see your nearest United Motors distributor.

Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION, ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN

WHICH HYDRANT HAS THE REPLACEABLE BARREL?
MATHEWS
Yes, sir! The barrel containing all working parts fits into the protection case. All you do is put in a new barrel when it's broken in a traffic accident.

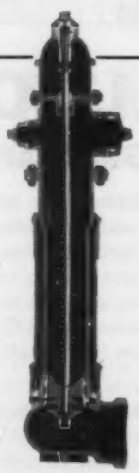
MATHEWS Means Fire Protection

LONG LIFE. Mathews Hydrants are protected at wear points by bronze bushings — corrosion and rust are thoroughly licked.

TROUBLE-FREE. The stuffing box plate, cast integral with the nozzle section, provides a positively leak-proof construction — water, sediment and ice cannot interfere with operating thread.

LOW-COST MAINTENANCE. Only one point requires lubrication — and that only during routine inspections.

REPLACEABILITY. A Mathews leveled in an accident can be replaced without excavating and in a jiffy. Community fire protection is interrupted only for a few minutes.



The Mathews includes every quality feature . . .

Compression type valve to prevent flooding • Head turns 360° simply by loosening bolts • Replaceable head • Nozzle sections easily changed • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • A modern barrel makes an old Mathews good as new • Mechanical-joint pipe connections as needed

MATHEWS HYDRANTS

Made by R. D. Wood Company

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

NEED 450 MC EQUIPMENT? INSIST ON G-E's

"Performance Guarantee"

2-WAY MOBILE RADIO

SELECTIVITY GUARANTEED FOR LIFE

SELECTIVITY GUARANTEED FOR LIFE. New multi-coil IF transformers. Compare G-E specs with any other.
HIGH-Q CAVITIES at both receiver input and transmitter output—your best insurance against TV interference!
290 KC LOW IF—the right IF for mobile radio equipment!
RESERVE POWER at the station—40 watts output on all station equipment—continuous duty rating!
FULL 6/12 VOLT OPERATION. Mobile unit functions from 6 or 12 volt source!
4-CHANNEL OPERATION . . . Here's positive assurance of performance on different frequencies!

IT'S new in every meaning of the word! Each feature of this 450 MC 2-way radio indicates advanced engineering design . . . fulfills all the performance factors you expect from superior mobile communications equipment. The complete value is best appraised by General Electric's confident warranty . . . *Selectivity Guaranteed For Life!*

Any decision to buy 2-way radio equipment must include a careful examination of the new G-E 450 unit. Make this examination and *you'll* become a well-satisfied G-E user. Take the first step . . . the right step . . . *today!* Call our local G-E Communications Counsellor or write: *Section X1074, General Electric Co., Electronics Park, Syracuse, N. Y.*

GENERAL ELECTRIC

NOW! **You get General Electric's guarantee policy when you purchase any new G-E 2-way radio . . . regardless of type!**

General Electric Company, Section X1074
Electronics Park, Syracuse, New York

I want to know more about the G-E 450 MC 2-way radio . . . more about G-E's GUARANTEE!

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

Ends Rats at

A QUICK CHANGE FOR THE BETTER is provided by the INTERNATIONAL TD-14A crawler tractor and Drott Bullclam shown working on the Taylor Kent Sanitary Landfill site in Robertson, Missouri. In the first picture, the TD-14A and Bullclam cut deep to put out fires and cover rat-breeding refuse. The second picture, made only a few days later shows the same area leveled and cleared with the INTERNATIONAL-DROTT unit ready to spread a clean earth cover over part of the more than 750 cubic yards of refuse dumped daily at the fillsite.

Robertson

Sanitary Landfill Method of Garbage Disposal Being Used in St. Louis County, Missouri, to Convert Community Eyesore to Public Playground.

The roar of the powerful INTERNATIONAL TD-14A crawler and DROTT BULLCLAM shovel working on a sanitary landfill site in Robertson, Missouri, will soon be replaced by the laughter of children at play.

For today, the ramp method of Sanitary Landfill is being used to build a 32-acre playground on what was once a rat-infested, highly odorous open dump.

Thousands of dollars in sprays and uncounted man hours had been spent in futile attempts to control the rats and the flies and eliminate the odor that threatened the health of the citizens in the community.

Two days after the INTERNATIONAL-DROTT ramp Sanitary Landfill operations were started, rat infestation ended. It was also the end of the flies, the odors and the wind-blown waste that had plagued the area for years.

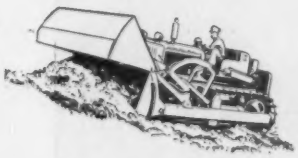
In a few short years, fill operations will be complete. Then the site will be seeded, playground equipment installed, and turned over to the city of Robertson as a gift in memory of her husband by public-spirited Mrs. Taylor Kent, present owner of the tract.

All refuse collected in St. Louis County is now disposed of by the Sanitary Landfill Method.

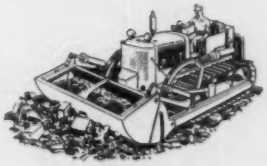
And all the equipment used on the major Sanitary Landfill sites in St. Louis County is International-Drott.

INTERNATIONAL-DROTT is the only equipment specifically designed for methods of Sanitary Landfill. Call your INTERNATIONAL-DROTT distributor today. See for yourself how this "one-man sanitation squad" can put a fast, economical end to refuse disposal problems.

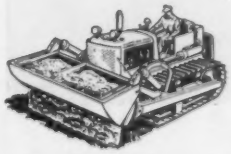
DROTT MANUFACTURING COMPANY, MILWAUKEE 8, WISCONSIN
INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



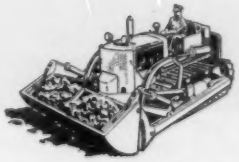
1. Prepares the Site



2. Crushes and compacts refuse



3. Transports and spreads earth cover



4. Grades and levels finished area.

BULLCLAM BY
DROTT

POWER BY
INTERNATIONAL®
POWER THAT PAYS

Dempster-Diggster bucket GETS A FULL LOAD WITH EVERY STROKE!

The hydraulic crowd and hoist operation of the new Dempster-Diggster GRD-101 gives you big shovel advantages in front end loading and excavation work. As shown in the at-work photos at right, here's what happens: Dempster-Diggster moves into material with shovel lowered against front of frame. No wheel traction is used to get excavation power. The hydraulic crowd and hoist moves bucket out and up following contour of material—getting a full bucket with every stroke . . . reducing loading time and idle truck time, thus getting the iob done faster!

When you put your Dempster-Diggster into operation, one of the first things you will find is that your entire operation must be geared to a faster pace. This means greater efficiency of equipment and manpower—more profit to you!

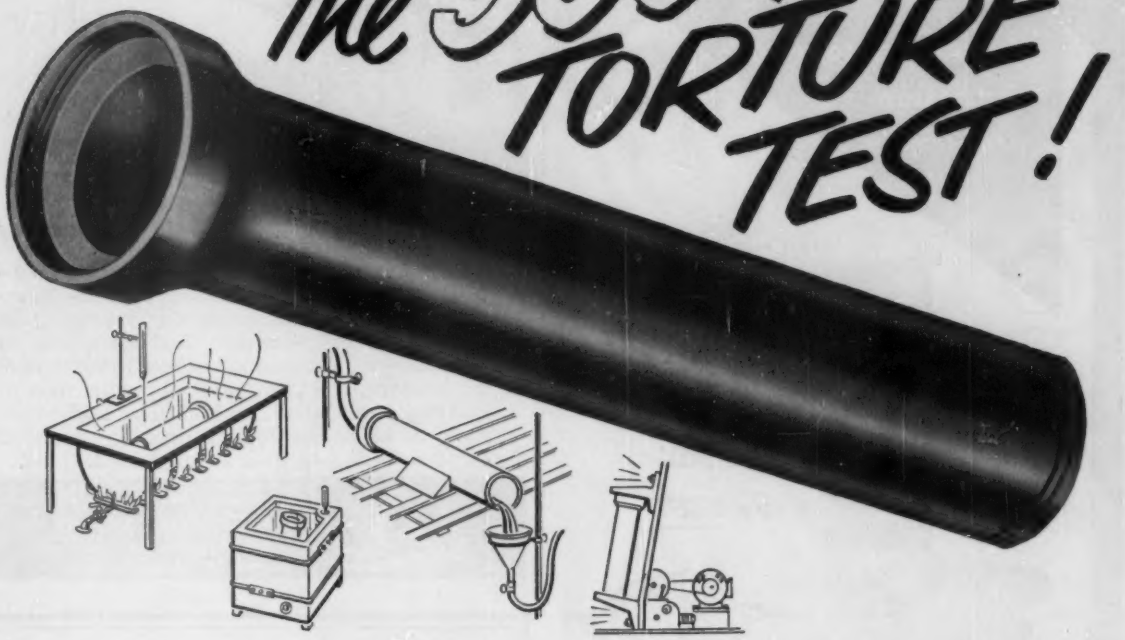
Write us asking for Folder No. 3116 giving you complete information on the features of the Dempster-Diggster, including TRUCK-SPEED MOBILITY TO AND FROM JOBS . . . AUTOMATIC BUCKET TRIP . . . MAXIMUM DUMPING AND DIGGING HEIGHT . . . MINIMUM TURNING RADIUS . . . THE SHOVEL WITH TORQUE CONVERTER . . . HYDRAULIC STEERING, etc. Manufactured by Dempster Brothers, Inc.

In photo below camera catches Dempster-Diggster ready to back off and move up to a truck for loading.

DEMPSTER DIGGSTER

DEMPSTER BROTHERS, 874 Dempster Bldg., Knoxville 17, Tennessee

This section of **CLAY PIPE** has just taken the 500-YEAR TORTURE TEST!



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Clay Pipe in service is often subjected to alkaline ground waters — so they boiled it in a concentrated solution of corrosive alkali. Then they soaked the same length in sulphuric acid for a week, to duplicate the corrosive effects of sewage gases. For good measure, they ran a stream of hydrochloric acid through it for another week. Then they half filled it with gravel, plugged up the ends, and put it in a machine that shook it like a cocktail, to see what effect years of abrasion might have on the inner walls. They soaked it in successive solutions of hot detergent, sea water, and the 16 most common industrial wastes.

After the test — roughly equal to 500 years of sewerage torture — they checked its dimensions, absorption, and crushing strength. *It was still as strong and round, as hard and smooth, as the day it was made.*

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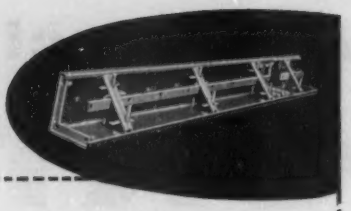

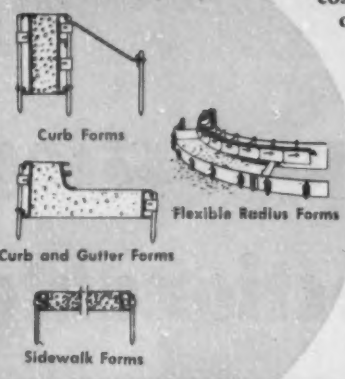

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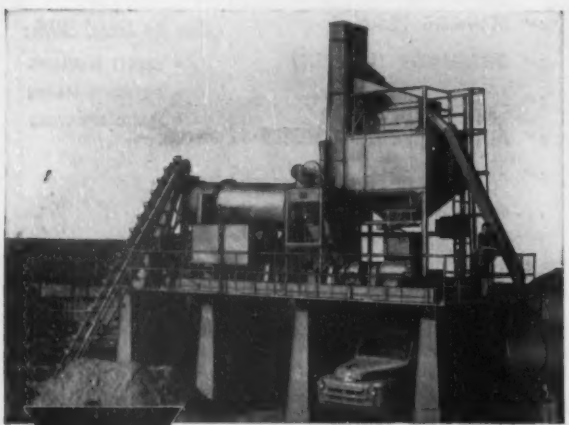

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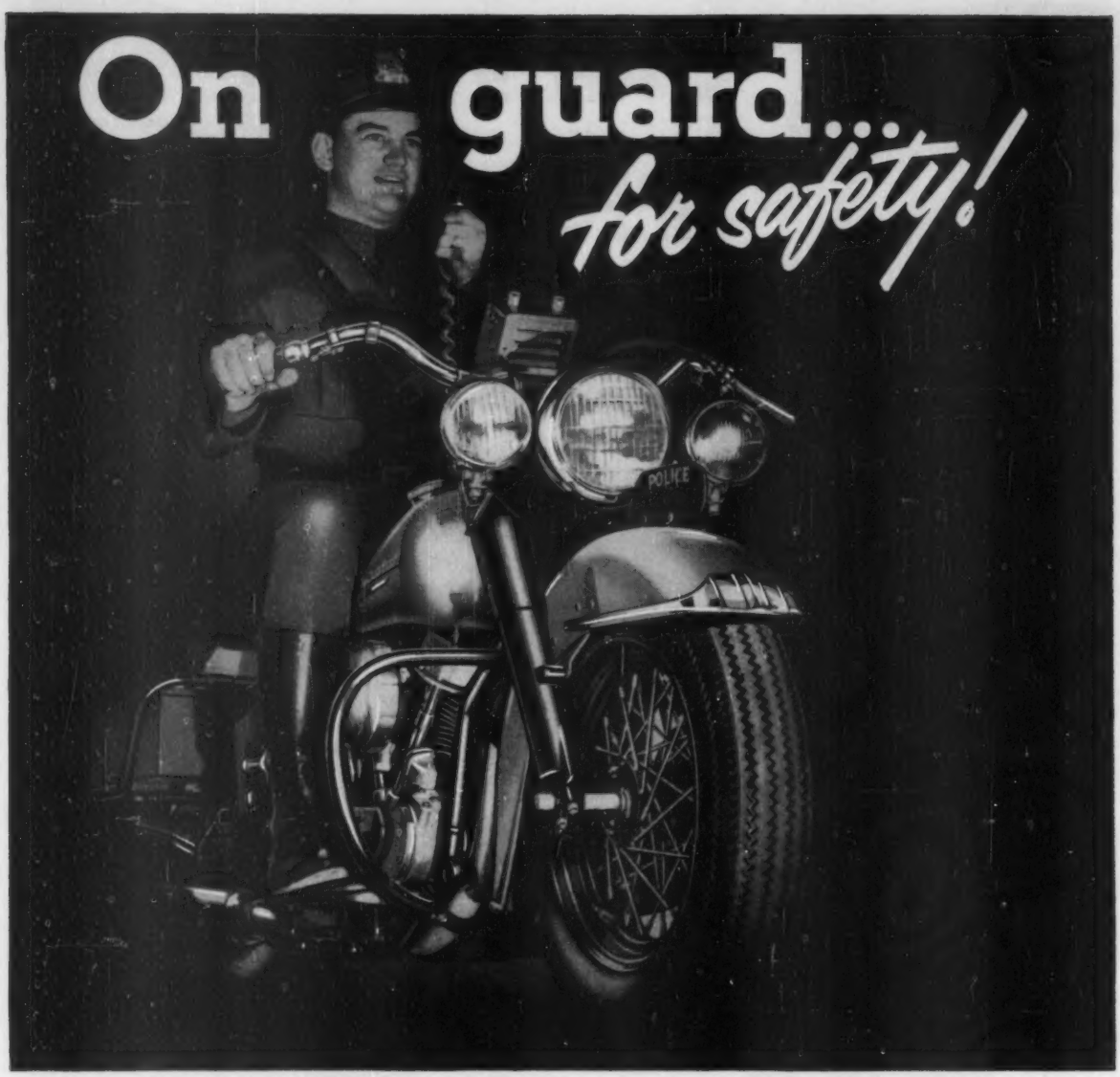

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Birmingham, Ala.	WBRC	6:15 Mon.
Boston, Mass.	WBZ	8:00 Tues.
Buffalo, N. Y.	WBEN	7:00 Mon.
Charlotte, N. C.	WBT	7:30 Mon.
Chicago, Ill.	WGN	8:05 Mon.
Cincinnati, Ohio	WLW	7:00 Mon.
Cleveland, Ohio	WGAR	7:30 Mon.
Columbus, Ohio	WHKC	6:45 Mon.
Dallas, Texas	KRLD	6:30 Mon.
Davenport, Iowa	WOC	6:15 Mon.
Denver, Colo.	KOA	8:30 Mon.
Des Moines, Iowa	WHO	7:15 Tues.
Detroit, Mich.	WWJ	6:45 Mon.
Duluth, Minn.	WDSM	8:15 Mon.
Freeport, Ill.	WFRL	4:15 Mon.
Houston, Tex.	KXYZ	7:00 Tues.
Indianapolis, Ind.	WFBM	6:15 Mon.
Jacksonville, Fla.	WJAX	7:15 Mon.
Kansas City, Mo.	WDAF	6:15 Mon.
Knoxville, Tenn.	WNOX	6:30 Tues.
Los Angeles, Calif.	KFI	7:45 Mon.
Louisville, Ky.	WHAS	6:30 Mon.
Memphis, Tenn.	WMPS	6:30 Mon.
Milwaukee, Wis.	WCAN	7:15 Mon.
New Orleans, La.	WWL	6:30 Mon.
New York, N. Y.	WOR	9:05 Tues.
Omaha, Nebr.	KFAB	6:30 Mon.
Philadelphia, Pa.	WCAU	7:30 Mon.
Pittsburgh, Pa.	KDKA	6:30 Tues.
Pomona, Calif.	KPMO	6:15 Mon.
Portland, Oregon	KGW	6:45 Mon.
Providence, R. I.	WPRO	6:29 Mon.
St. Johnsbury, Vt.	WTWN	7:15 Mon.
St. Louis, Mo.	KSD	7:15 Tues.
St. Paul, Minn.	KSTP	6:15 Mon.
Salt Lake City, Utah	KSL	7:30 Tues.
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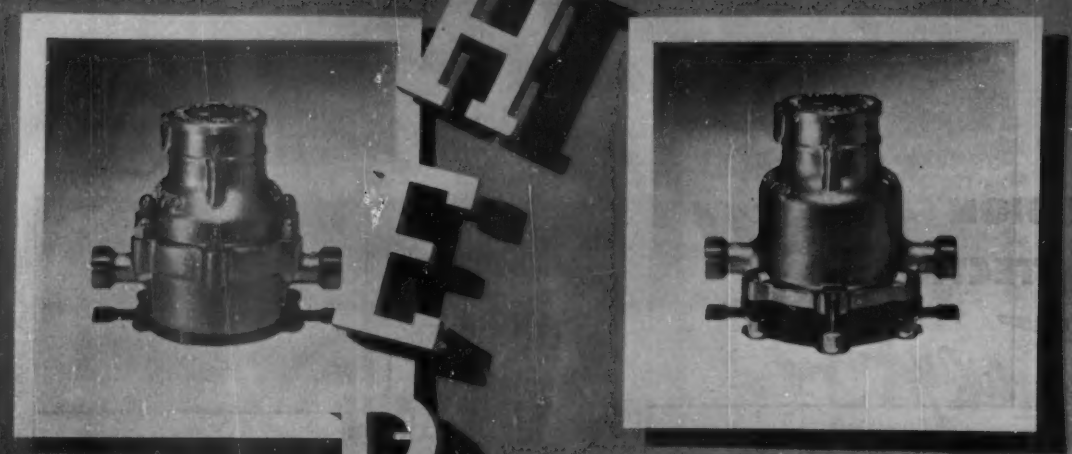

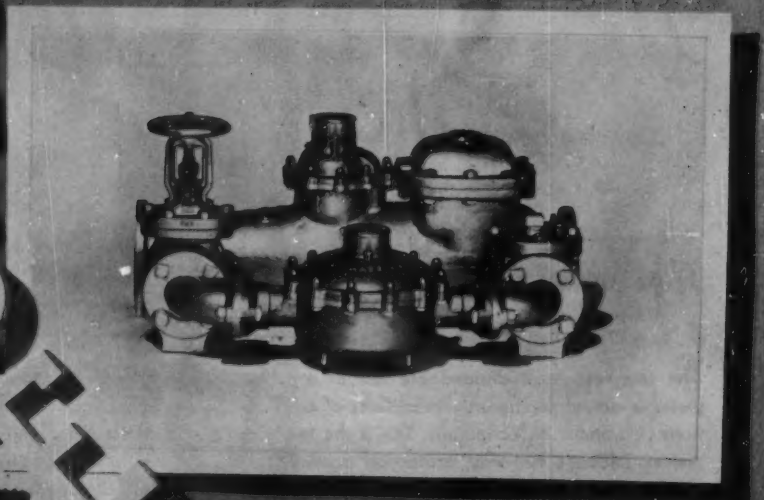

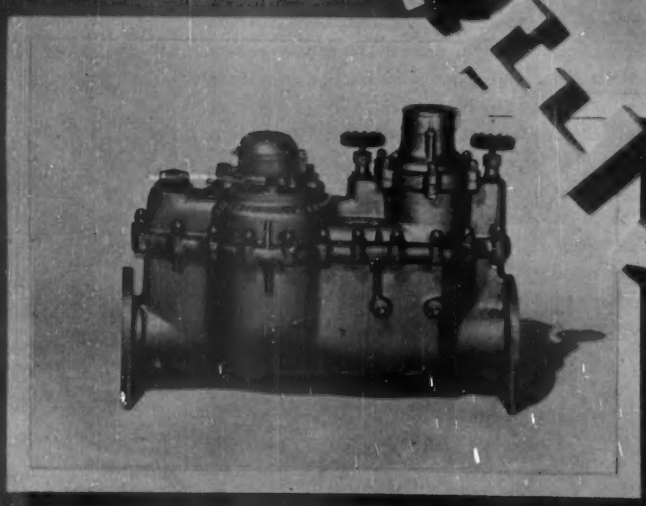

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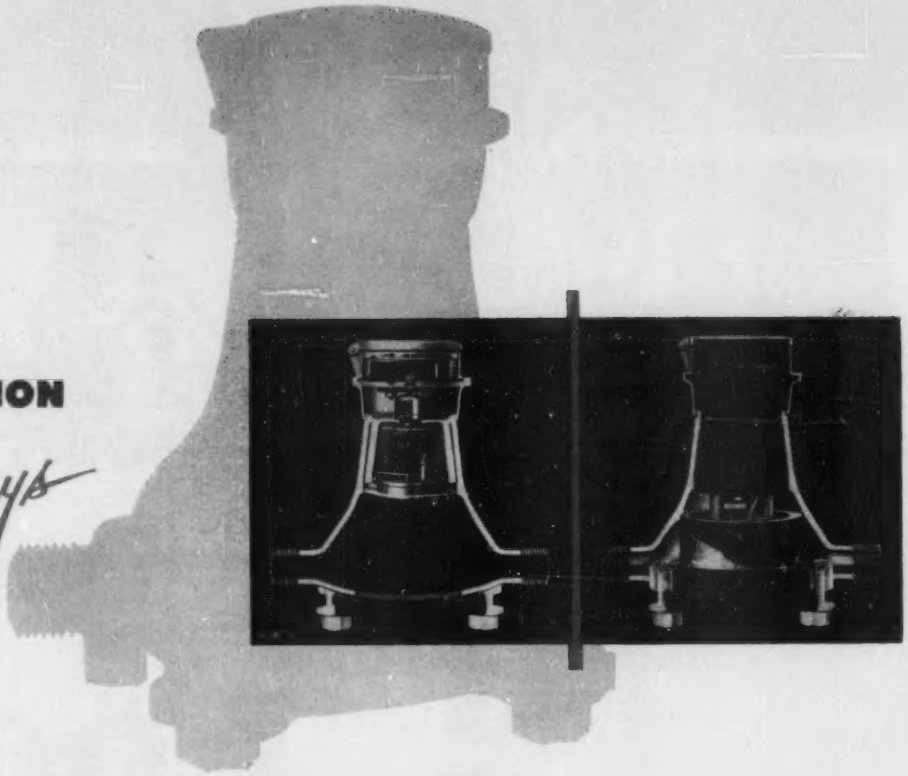

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JULY 1954 The American City

Settling Basin Cleanup

Milwaukee keeps settling basins contented with regular care and cleaning for outstanding water-plant performance

By E. F. TANGHE
Superintendent of Water Works
Milwaukee, Wis.

EVERY well-behaved water plant that uses rapid sand filters is dependent upon its set of settling basins. It is unfortunately true that although filters get all the credit, the settling basins do most of the work. Supply your plant with good, sturdy settling basins that can be counted on to deliver water containing 10 ppm, or less, of flocculant material and your filters will chalk up performance records that will be the admiration of the water industry.

The filters of the Milwaukee plant had put us in the water-works big league long before the Braves took up residence here to make baseball history. The plant has a designed capacity of 200 mgd (million gallons daily) when the filters operate at the

WORLD-WIDE PHOTO

A six-month's collection of sludge makes messy walking in the settling basins.

PHOTOS ON THIS PAGE COURTESY OF "THE MILWAUKEE JOURNAL"

A crew of six, manning a 2½-inch fire hose successfully forces sludge from the basins.

conventional rate of 2 gallons per square foot per minute. The plant functions with 32 filters, each supplied with surface-wash equipment, and each rated at 6.25 mgd. Thanks to the quiet dependability of our settling basins, we can boost maximum capacity to 300 mgd any time we wish. At the 200-mgd rate the water gets one hour of mixing and four hours of settling.

Two-Deck Settling Basins

We have two sets of basins, one to the north of the filter building and the other to the south. Each is divided into two sections which are, in turn, divided into two decks each. By making the basins doubly deep, only half the area was required for the same detention time. Each of the four units is 594 feet long, 148 feet wide, and 27 feet deep, and has a capacity of approximately 11,000,000 gallons. The mixing basin, holding two rows of Dorr flocculators, measures 74 feet in length, 148 feet in width, and the full 27-foot depth. A wood baffle extends between the double row of paddles, reaching within 3 feet of the floor. There is a similar baffle between the mixing and settling basin.

Water leaving the flocculators enters the lower deck of the settling basin. From here, it passes into the upper deck through 5-foot by 4-foot openings, spaced 17 feet apart. The openings are located about 5 feet from the end well. After traveling through the upper basins, the water leaves through slots near the top of the front wall.

This design has given us consistently good and dependable results if we do our part and do not neglect the basin. Actual detention time is longer than 75% of the theoretical, based on careful tests using activated carbon for checking purposes. Moreover, the basin can be counted on to remove over 80% of the algae.

Twice-Year Cleaning

Our part in helping the settling basins function is to keep the units clean and in good repair—simple enough obligations. The basins get their cleanings twice a year, in the spring and fall. Last year, fall cleaning was delayed for a month because of excessive water use during a prolonged dry spell.

Fifteen men are organized to manually clean the basins with fire hoses. Two six-man crews each mans a 2½-inch fire hose when cleaning the lower deck, and two 1½-inch hoses are each manned by one man when work is done on the upper level. One man is placed in charge. All the men are outfitted with rubber boots, hats, coats, and gloves which are furnished by the city.

Variations in Sludge Depth

The depth of the sludge varies from 1 foot to 3 feet on the lower deck and from 2 inches to 8 inches on the upper level. We remove part of the sludge by "bumping," a method in which the basin is partially filled and rapidly pumped out. The remaining sludge is removed in quarter sections each day. A concrete gutter, placed along the center line of the lower deck, carries away the sludge, delivering it to a pit where it can be pumped into the lake through the filter wash-water drain.

Water for flushing comes from the distribution system, and is delivered to the basins through mains that are 8 inches in diameter. When the hoses are in use, water pressure drops from 105 to 80 pounds per square inch and is not permitted to drop any lower.

Resterilization

After cleaning, the crews make whatever repairs are required, and the basins are then resterilized with chlorinated water. Our regular chlorinators supply this water, using a heavy dose of chemical. The water remains in the basin overnight, after which the basin is put back into service. The entire process of cleaning, making repairs, and sterilization of the four basins requires from four to six weeks, depending upon how extensive repairs are.

With this kind of semiannual care, our "contented" basins remain a consistently dependable phase of our treatment process. Treatment chemicals include alum and chlorine; we chlorinate to the breakpoint and use activated carbon only during the summer when taste and odor problems threaten us.

The plant, designed and constructed under the supervision of City Engineer Joseph P. Schwada and his staff, was placed in operation in 1939. Herbert C. Brown, who later became water superintendent, was in general charge, and Herbert Schmitt was construction engineer. Alvord, Burdick, and Howson, of Chicago, were the consulting engineers.

When cleaning is complete, the men inspect the walls for needed maintenance.

In a muddy area like this, a crane toppled over and almost dropped out of sight.

Ankle Deep in MUD

The Jeffersonville, Ind., sewer-construction program uses special design and construction standards to combat muddy, undependable soil problems

Some tunneling was required to put the sewer through highway embankments.

By WILLIAM C. GOYNE
City Engineer
Jeffersonville, Ind.

THE BIT of silver lining in the dark cloud of last year's virtually countrywide drought must certainly have been the lengthening of the normal construction season and the simplification of moving earth in generally wet areas.

This is especially true of the current $2,350,000 sewer project under construction in Jeffersonville, Ind. Despite one of the dryest summers on record, men are working in ankle-deep mud to install a 4,800-foot outfall sewer. It is frightening to imagine conditions had rainfall been normal. These conditions serve to point up the design problems encountered in planning our program.

Boyd E. Phelps, Inc., consulting engineers and architects of Michigan City and Indianapolis, Ind., were retained by the city to design a sewage-treatment plant as well as extensions and repairs to the existing sewerage system.

Motivating Factors

This work was made necessary by three forces coming to a head and demanding action at about the same time. First was the organized clean-up of the Ohio River; second was the annexation of several areas near the city where no service existed; and finally, there was the fact that existing sewers were old and inadequate.

High Water Problems

Situated as it is on the banks of the Ohio River, just across from Louisville, Ky., our city normally has a high water table. In fact, experience with flood-control work played an important part in the design of the new project.

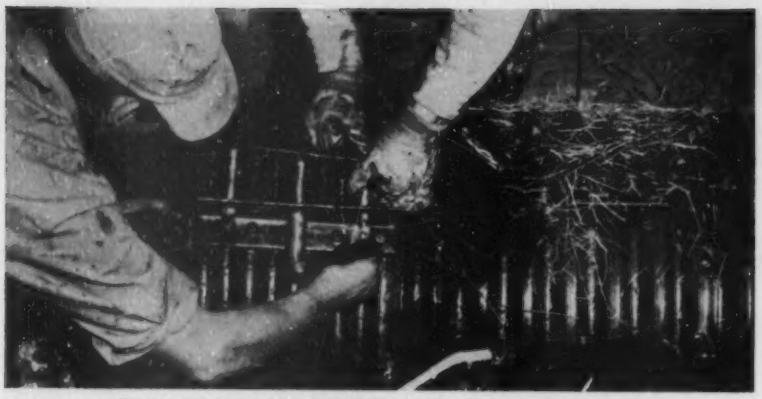
In 1939, a Flood Control District was established for Jeffersonville and nearby Clarksville. Extensive levees were constructed under the auspices of the Corps of Engineers, U. S. Army. Drainage was provided by the use of Armco Multi-Plate pipe at a number of locations. The excellent service and condition of these structures led to consideration of metal structures, particularly for the outfall line, on the current project.

Alternate designs were prepared for the sewage-plant outfall, based on Armco's asbestos-bonded corrugated metal pipe and reinforced-concrete pipe, some of the latter to be located on cradles. When bids came in, the asbestos-bonded pipe was only slightly more expensive, and the city decided to use it as a protection against the obviously bad foundation conditions.

The wisdom of this action was borne out by the ease and speed with which the contractor placed the lightweight sections as contrasted with the difficulties involved in building forms for cradles. Early in the work, the contractor's backhoe became engulfed in the mire, sinking in above the cab. Fortunately, prompt action with bulldozers and cables salvaged the equipment.

The asbestos-bonded outfall, which is 27 inches in diameter; extends from the sewage-treatment plant to the Ohio River levee where it empties into one of the existing culverts. It was supplied in 20-foot lengths and joined with bond couplers. The final 300 feet was anchored to concrete piers as a precaution against flotation during periods of high water.

The depth of the line varies from 3 feet to 14 feet, and except at three



PHOTOS FOR THIS STORY COURTESY OF ARMCO DRAINAGE & METAL PRODUCTS, INC.

The sewer pipe is jointed by the use of bolted coupling bands.

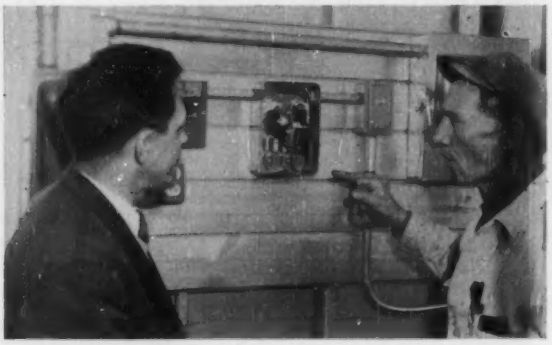
points, pipe was installed in an open trench. Beneath one heavily traveled boulevard and two railroad spur lines, 36-inch-diameter, corrugated-metal pipe was jacked through the embankment to provide a conduit for the asbestos-bonded pipe. Space between the two structures was filled with grout. The longest jacking job was 190 feet; the others ran 160 feet and 110 feet.

Another interesting construction problem occurred where two combined sewers were to be brought beneath a pair of railroad lines to reach the treatment plant. Length of the line involved in each case is about 350 feet, but one is 27 inches in diameter and the other 90 inches. Portions of the smaller line lie beneath 43 feet of fill, while the larger line carries a 37-foot fill. Both were installed by tunneling, using Armco galvanized, tunnel-liner plates. The invert of each tunnel, which will serve as the actual sewer, was paved with a bitumastic lining.

Finance

Jeffersonville, a city of 18,000 people, is investing $2,350,000 in its sewers. The city is financing this work with 39-year revenue bonds to be repaid through a sewer-service charge based on water use. Completion of the project is expected by mid-1954.

Ernest Glasser is residential engineer for the consultants. The program is administered by the author and by incumbent mayor of Jeffersonville, Charles Hoodenpyle.



Left, Water Superintendent Ed Kreps explains the operation of the butterfly valve to Mayor Virgil B. Conkling (center), and City Manager James R. Stewart. Right, the Mayor studies the controls that get the impulse to stop the vacuum pumps.

Automatic, Wireless Pump Control

AT TITUSVILLE, a city of 2,604 in central Florida, the well field water pump gets a direct, foolproof signal that tells it when to stop delivering water to the reservoir at the plant located about 2 miles away. No wires or other special controls are needed. Instead, the pressure developed in the pipe shuts off the motor.

The city's new well field was developed by the use of Moretrench well points. A vacuum pump draws the water from the well points and delivers it to a storage tank at the plant.

When the reservoir is full, a float inside the tank rises, and closes a switch that operates the butterfly valve, an S. Morgan Smith product. The valve is mounted on a riser pipe, which is alongside the reservoir, by the use of Dresser couplings. It stops the flow of water coming from the wells, backing it up in the lines until the pressure reaches 28 psi at the vacuum pumps. This pressure closes the automatic timer that in turn halts the operation of the pump.

The timer is set to provide a time lag of one hour, under normal conditions, between the time that the water level in the reservoir drops sufficiently to open the butterfly valve and release the pressure in the lines, and the time the pumps at the field begin pumping again. This prevents the pumps from constantly and needlessly stopping and starting.

The present system of wells was drilled into coquina rock with an 8-inch auger to a depth of 18 feet. Sand and gravel were packed around a standard well point placed in the drilled hole. The well field gets its water from local rainfalls that seep into the porous rock formation. The distribution system also has been strengthened by the installation of 15,000 lineal feet of 6-inch, cast-iron pipe.

The well system and distribution work were designed by Smith & Gillespie, consulting engineers, of Jacksonville, Fla. The improvements were begun under the administration of Mayor Robert H. Hudson and completed by the incumbent administration of Mayor Virgil B. Conkling.

Sanitary Fill Series, X

Refuse Makes a Runway

Two Leach Packmasters deposit their loads on a rather narrow, 50-foot dumping space.

Meriden, Conn., builds a 30-foot-deep sanitary fill in 8-foot lifts to extend east-west runway of the municipal airport

GIVE US two or three years more, and airplanes will land where refuse trucks now operate. By adopting the sanitary fill, we are able to reclaim a wasteland with discarded waste material and make a municipal contribution to the most modern of transportation methods.

Approximately 45,000 people annually contribute 145,000 cubic yards of refuse to this fill. However, we have had to adopt unusual operating measures to bring the fill to the anticipated airport runway grade, and still keep the work truly sanitary.

Ground Elevation

The fill has to raise the ground elevation about 30 feet. Nevertheless, we don't deposit refuse in layers deeper than 6 to 8 feet, because thick layers decompose slowly, are harder to compact, and are more difficult to cover each day. Therefore, we spread the refuse over an area roughly 20 feet wide by 50 feet long and compact it thoroughly with a Caterpillar tractor. We then cover this layer with 1 foot of sand and gravel hauled in by a 12-yard, rubber-tired Wooldridge scraper, pulled by an Allis-Chalmers crawler tractor. For the top layer, we thicken this cover to 2 feet.

At the edge of the fill, along the river, we spread 10 feet of coarse gravel to reinforce and support the construction. We have confined the fill work within bounds 100 feet short of the normal river level to allow for periodic flooding. The Connecticut State Water Commission has approved this distance to be adequate.

By J. H. L. GILES
Assistant City Engineer
Meriden, Conn.

At present, we are using only two equipment operators to work on the construction, although a third man would be helpful. In our current procedure, the operators direct the trucks to the dumping points. However, the operation would be smoother if we had a dump supervisor, as we have had in the past, who could also keep records.

The amount of equipment needed is essential and spells the difference between a truly successful sanitary fill and an insanitary open dump. If the city's population is less than 25,000, the equipment should include a crawler tractor and a bulldozer or front-end shovel, if cover material is easily available. Otherwise, some equipment to transport cover material will be needed.

If the city has a larger population, it will have to provide some type of earth mover such as a scraper loader. If the fill is on wet, swampy land, a dragline or backhoe is very handy. If the population ranges between 80,000 and 120,000, three pieces of equipment are necessary; and if the population exceeds 160,000, the city probably will need at least five pieces of equipment. Moreover, I cannot recommend the use of the equipment for jobs not related to refuse disposal. In my opinion, this equipment ought to be kept on the job and not transported about.

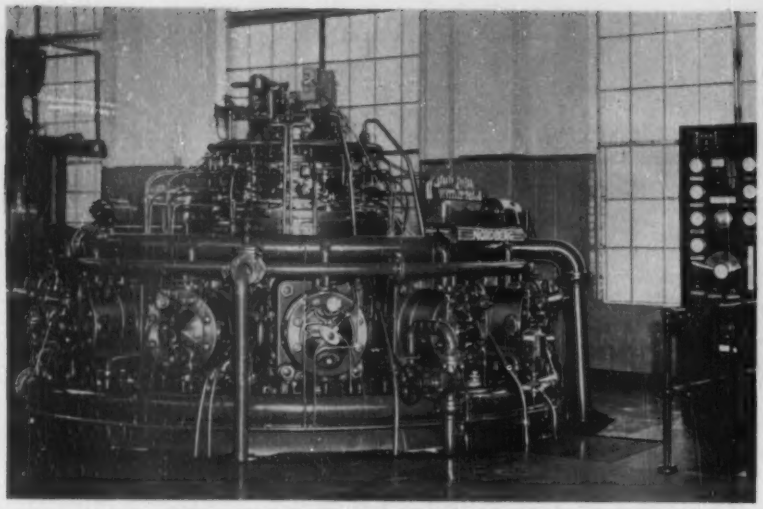
The fill settles only slightly, although we may expect more depression as time goes on. Nevertheless, we are confident that the settlement in this carefully compacted work will in no way approach that of the old, open dump which settled 7 to 10 feet in a 30-foot lift. Also, brush, wood, boxes, and old lumber all make a fine foundation for fill work in low, wet areas, where we will operate future fills, and will allow us to operate heavy equipment in areas that otherwise would have to be ruled out.

One should be alert for fire hazards, too. We have operated the Meriden fill without suffering a fire, but we are constantly on the lookout for refuse containing hot ashes that might present a danger.

Finally, we have found that for a block of 10,000 persons contributing refuse, we can expect approximately 100 to 125 cubic yards of loose material each day. We can compact this quantity to 50% to 90% of its original volume, averaging about 75%. Salvage at a fill is a nuisance and ought to be conducted at the source and not at the fill site.

Costs

Viewed as a municipal service, the Meriden fill has performed splendidly. We have been able to dispose of our refuse at a cost of only 10 cents per cubic yard of loose material. This sum includes the cost of one dump supervisor, two equipment operators, two bulldozers, and one 12-yard earth scaper to haul cover material and maintain roads. For this, we will profit by a fine extension to our airport runway which will be so urgently needed in the near future.

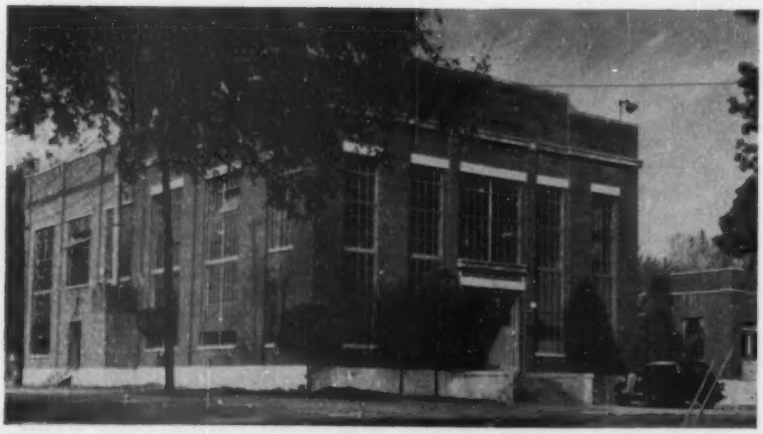


The new Nordberg duafuel engine develops more than 1,500 kw of power, operating at a speed of only 400 rpm. This radial-type unit is so compact that it was installed in the same floor area that was formerly occupied by a small, three-cylinder diesel.

First Radial-Type Dual-Fuel Engine

Fredonia, Kans., saves space in its municipal electric plant with a compact generating unit

By G. W. OTTO
Superintendent of Electricity
Fredonia, Kans.



No expensive plant-building alterations were required to boost the plant's capacity.

FREDONIA, in southeastern Kansas, is a small municipality of less than 4,000 people. Yet it has shown progressive thinking by its installation of a radial-type, dual-fuel engine in the municipal electric plant. This is believed to be the first commercial application of this type of engine.

Installation space was a critical problem that we had to overcome in the expansion of our plant. Our municipal electric plant has been operating for more than a quarter of a century, furnishing power to diversified industries including two alfalfa mills, three grain elevators, a banknote printing firm, a brick-manufacturing plant, and other smaller plants, in addition to private power for residential use. The load has grown considerably in 25 years of operation, and the decision to enlarge the plant's generating capacity appeared to require a major capital investment.

All generating space in the existing plant has been filled with the conventional engines. However, when the radial-type engine became available, we decided to place it in the space occupied by one of our oldest units. This was a three-cylinder, air-injection unit. A Nordberg radial engine, we found, would fit this space easily.

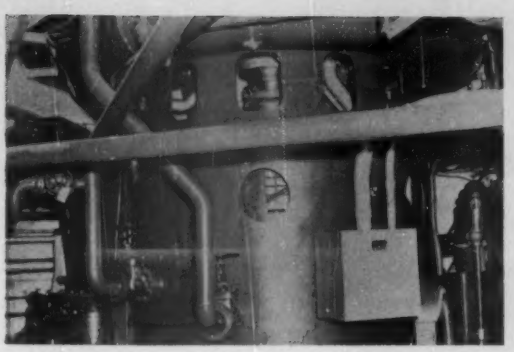
The radial engine is similar in construction to the 274 spark-fired engines installed by the Aluminum Company of America and Kaiser Aluminum in their southern reduction works. It is, however, of the duafuel type, with 12 cylinders of 14-inch bore and 16-inch stroke, operating at 400 rpm and driving a 1,500-kw Ideal generator. The engine-generator foundation required only 27 cubic yards of reinforced concrete, a remarkably small foundation considering the power output.

Compact Design

The radial engine design utilizes its subbase for a new type of housing. This gear arrangement is engine driven and operates the DeLaval lube-oil pump, jacket-water pump, raw-water pump, scavenger air blower, and the exciter, making an unusually compact arrangement of auxiliaries.

The scavenging air is automatically throttled by means of a butterfly valve operated by a pneumatic motor. The motor is actuated by a Bristol controller measuring the exhaust-pipe temperature. Higher efficiency at partial loads results from this automatic control.

Lube oil is cleaned by two Winslow full-flow purifiers using cellulose-type



The subbase of the radial engine houses the 1,500-kw Ideal generator. The foundation required only 27 cubic yards of concrete.

filters. The auxiliary lube-oil pump is used before and after service and will automatically cut in should the oil pressure drop.

A central Nordberg control and instrument panel was specified and furnished. It included starting and indicating lights, a Viking instrument alarm system, an Alnor pyrometer, and G-E switchgear.

The engine uses an American Air Filter Cycloil intake air cleaner that employs circulating water and oil for summer operation. For winter use, oil is used as a cleaner. This method of cooling and cleaning reduces air temperatures considerably in warm weather.

A Young radiator-type intercooler is installed after the scavenging air blower to cool the intake air in summer. Water from the raw-water pump is used for the cooling agent in the operation.

Fredonia supplies power for its residents at rates that start at 5 cents per kwhr and are scaled down to 2 cents. Charges for the larger power users start at 3 cents and range to 1.5 cents. With the exception of a $75,000 revenue bond issue used to supplement cash on hand, Fredonia does not have any outstanding indebtedness against its power and light plant.

The cash on hand at the time that the engine was purchased was an accumulation of net revenues collected. In addition, money was transferred from light-plant earnings to augment other city funds.

Glass Enclosed Swimming Pool

Glass enclosure and heated water extend the period of usefulness of the new municipal swimming pool

By OBED DEBOER, *City Engineer, Goodland, Kans.*
and
KENNETH H. LARKIN, *Swimming Pool Consultant, Kansas City, Mo.*

ON INDEPENDENCE DAY of last year, Goodland, a city of 4,700 in northwestern Kansas, dedicated and opened to the public its new municipal swimming pool with a bang.

The greatest obstacle to the success of an open swimming pool is its short season of usefulness. Normally, only the three summer months are suitable for swimming pool use, and even this can be shortened by our inclement, variable weather.

To overcome this difficulty, an engineering study recommended that the city build an outdoor-type pool, enclosed with a 7-foot-high windbreak and flooded with water heated at the municipal electric plant. The estimated cost of the proposed construction was $135,000.

These recommendations were approved enthusiastically by the community who voted $110,000 in bonds and dedicated the remainder of the funds from the city surplus contributed by the municipal power plant.

The pool has gravity-type sand filters, with a capacity of approximately 42,000 gallons per hour. The chlorinator is a Wallace & Tiernan solution-feed type that is manually controlled and has a maximum capacity of 40 pounds per hour. The physical appearance of the pool is best illustrated by the accompanying aerial photograph. The main pool is a combined swimming and diving pool, 60 feet wide by 150 feet long. A separate wading pool for the kiddies and another junior pool for the youngsters adjoin the shallow end. Surrounding the large pool is a wide concrete promenade which provides seating accommodations at the rear for sun bathers. This area is surrounded by a 7-foot-high windbreak of tempered plate glass in galvanized steel frames, supplied by Libby-Owens-Ford Glass Company. It has proved very effective in protecting swimmers and loungers from the wind.

At night, the area is floodlighted by two VRC18 Westinghouse 1,000-watt lamps on each of three poles on one side of the pool opposite the bathhouse, and two poles with three lamps each on the other side of the pool. Underwater lighting is provided by WS8 Westinghouse 400-watt lamps. Since the junior and wading pools would only be used during warm, bright days, no lighting is provided, and only a steel cyclone fence was built. A concrete walk surrounds the swimming pool area.

Soil Cement for Main Street

A grader scarifies and windrows natural street soil.

A Wood mixer then blends soil cement and water.

A sheep's-foot roller produces a dense, tough base.

A penetration-type coating completes the surfacing.

JULESBURG is a little city of 2,000 people in the northeastern corner of Colorado. But the city is not letting its size stand in the way of providing good streets. Its current paving program may set the pattern for other small cities that are looking for a thrifty way of keeping the downtown areas in good condition.

The system of good streets was one of the campaign pledges made by Mayor Victor R. Meline just before he was elected to office two years ago. The new mayor's first official act was to start the wheels turning that would make improved streets a reality. The initial move was the development of a bonding program that met the exacting requirements of Colorado law. The city then called for engineering studies to determine the best type of surfacing.

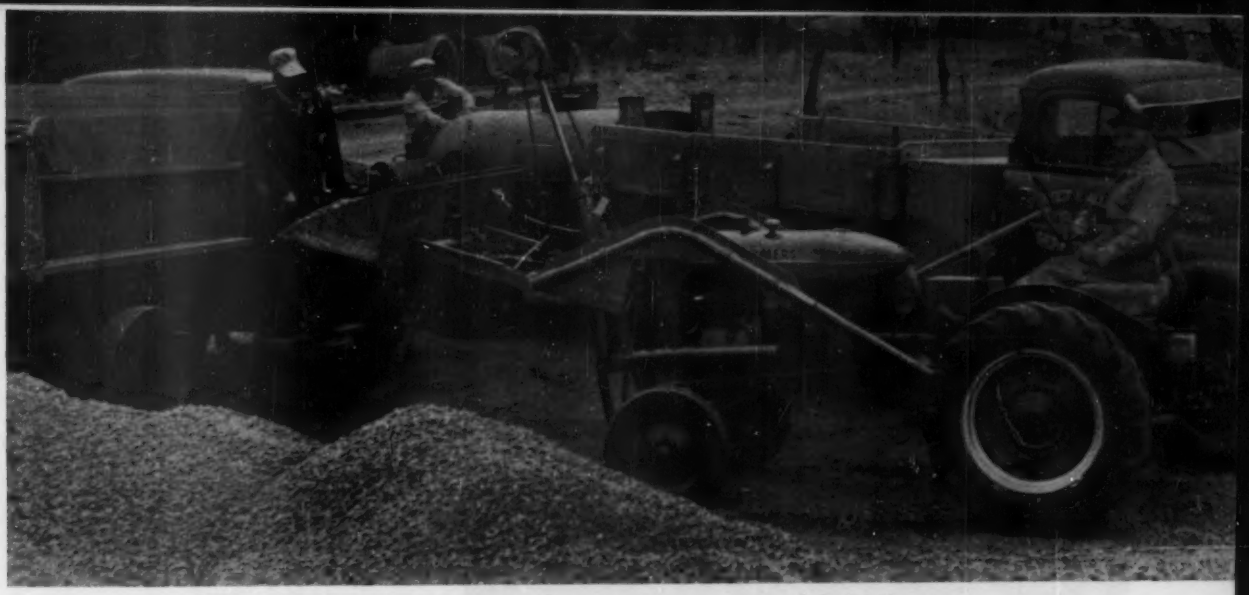
Financing established a maximum cost to the property owners of $7 per front foot for a 60-foot street and $4.90 for a 40-foot width. These costs were based on paving only, and excluded construction of curbs and gutters. However, to assist in the construction of curbs and gutters where it was needed, the city offered to do this work for 94 cents per lineal foot. Thus, when contracts were awarded, the city served both as owner and subcontractor.

Soil-Cement Surfacing

The type of pavement selected was soil cement. Lower first cost, a good record of low maintenance, and reliable performance were the principal factors prompting Julesburg's consulting engineer, E. J. Mecke, of the Ogallala Engineering Company, Ogallala, Nebr., to choose soil cement from all the other available types of material available to us as the best type of surfacing for the downtown business streets, and induced the City Council to approve the selection.

The soil-cement base is 6 inches thick and contains 8% cement and 92% natural soil. When compacted, it produced a density of 115 pounds per cubic foot. To do the work, the contractor used a 1,050-gallon Rosco asphalt distributor, a Caterpillar grader to shape the street to proper cross section, a Wood mixer to blend the cement and soil, and a sheep's-foot roller to compact it. A 5-ton, steel-wheeled roller made the final finishing touches on the surface.

An asphalt prime coat was followed by an inverted penetration coating of RC-3 asphalt and chips to complete the street. The paving has improved the appearance of Julesburg's business district markedly and has encouraged Mayor Meline and his council to adopt a similar, accelerated program this year.



Holton's three-man street crew gets together on truck, tractor, and asphalt distributor.

17 Blocks is a Busy Program

Holton, Kans., improves between five and seven blocks per 1,000 *people per year*

By STANLEY D. FISHER, *City Manager, Holton, Kans.*

LAST YEAR, the Street and Alley Department of Holton, a community of 3,000 in northeastern Kansas, graded and surfaced 17 blocks of streets under the supervision of Ross McAllister, superintendent. If the 1954 program progresses according to plan, the department will surface 20 more blocks. And in 1955, those streets surfaced in 1953 and 1954 which show the need for maintenance will be seal coated, and construction of only a few more new blocks will be undertaken.

5.67 Blocks per 1,000 Population

By itself, the work load does not look big, but if you recognize that it represents 5.67 blocks per 1,000 population, the program begins to take on a more substantial appearance. The Street and Alley crew is staffed with a three-man, full-time team, including Superintendent McAllister, and one man who is employed for four months of the year.

Moreover, the details of the street-construction program do not tell the whole story. For example, double this number of blocks were improved by an application of crushed rock. In addition, eight blocks were treated with oil to prevent a dust nuisance. The department also cleared snow, picked up leaves and trash, spearheaded the city's annual clean-up campaign, and built park tables for our municipal park system. Every well-run city, like every well-run home, has to have a willing handy man. In Holton, this handy man is our Street Department.

To improve the 17 blocks of last year's program and the 20 blocks this year, we have established a procedure. Our crew first grades the ditches to give them clear and easy draining. Then the men bring the surface to grade, rolling and sweeping it, and patching any low spots that may be in evidence. They follow this with the application of MC-3 asphalt, repeating the treatment in three to five days, and sealing the surface with approximately 25 tons of washed chat per block. The road is then dragged, rolled, and opened to traffic. Any "bleeding" of the asphalt through the surface is corrected by a spot application of gravel.

New Equipment

Last year also saw new equipment added to the department, including a 2-ton dump truck, and a new motor for the Etnyre asphalt distributor. We have one other stake-body truck and an Allis-Chalmers rubber-tired tractor with a front-end shovel attachment.

Functioning as a street-cleaning department, our duties required us to remove and haul away 73 truckloads of dirt during 1953. In the winter, we ran snowplows on three separate occasions and hauled away 42 truckloads of snow. We handled 52 loads of leaves, 32 loads of trash, and 202 loads of branches and brush.

The city's 6-yard "alley cats" are fitted with Roto-Pac escalator-type bodies.

Philadelphia's "ALLEY CATS"

Narrow, 6-yard refuse trucks, designed for 6- to 9-yard-wide streets, turn in a surprising performance in a city-conducted collection test

By JOHN A. BAILEY, *Deputy Commissioner of Streets and Sanitation, Philadelphia, Pa.*

WE NOW HAVE a new species of "alley cat" that is making us take a fresh look at our refuse-collection program. This "cat" is a small, compactor-type refuse truck, of 6 yards capacity, that prowls the city's 6- to 9-yard-wide streets. In the old city, these passageways were alleys, but today houses face them. In the past, the city used horsedrawn wagons to make rubbish collections in these areas.

Under the leadership of Joseph P. Reilly, superintendent of automotive equipment, we started developing small, narrow-bodied refuse trucks for operation in these problem streets. Our first order was for 20 hydraulic-type, 9-yard bodies mounted on International Harvester chassis that carried 14-by-20, 18-ply tires. These units did not solve all the city's collection problems, but they were particularly effective on 14-foot streets where parking was restricted to one side.

For the extremely narrow streets, another solution had to be evolved. We asked for a completely enclosed, 6-yard body, mounted on a chassis no wider than 77 inches. We purchased four of these 6-yard units and our crews promptly christened them "alley cats." These collection trucks were put into service about the first of this year.

In connection with our development project, we conducted tests of 9-yard and 16-yard trucks to see which would fit our particular needs best. Although compactor bodies with capacities of 19 or 20 yards looked promising, they appeared to be practical only for rubbish. Unless we mounted them on dual-rear axles, we could run the risk of overloading them with garbage or ashes.

While making the test runs to determine the efficiency of the 9- and 16-yard bodies, we decided to assign one "alley cat" to the test area to collect the same material. We attempted this experiment in the interest of pure research, never suspecting that we were entering a "dark horse" in the competition.

As test data began to accumulate, we were amazed to find that the small 6-yard body outperformed a 16-yard unit. The circumstances were ideal for the small bodies. We were hauling to a nearby disposal area through streets that were reasonably open. Part of the area had been developed many years before and the streets were not paved from curb to curb, so that the maneuverability of the "alley cat" paid off. The biggest savings, however, was caused by the compaction that the small body could deliver.

Ten-Day Test Data

Our entire sanitation division is trying to interpret the results (see table below) of the tests so that we can plan our current program effectively. We cannot ignore the larger production obtained by these smaller bodies, incredible as it may appear. We must take into account that Philadelphia is currently engaged in a major in-

Ten-Day Test Data

Vehicle Types (cu. yds.)	Loading Time (lbs. per min.)	Capacity (lbs. per cu. yd.)	Weight (per load)	Daily Total (lbs. collected)	Loads (per day)
6	57	474	2,842	15,345	5.4
9	42	391	3,520	14,432	5.1
16	38	300	4,799	13,864	2.8
16	46	257	4,108	16,670	4.0

cineration program that will give us disposal sites near the center of each refuse production area, thus reducing the value of the extremely large collection bodies.

Perhaps the reason for the greater production is psychological. It may be that men work harder on smaller trucks and fill them more quickly. Furthermore, when a crew loads trucks with capacities of 16 yards or more, the men have to overcome the factor of human fatigue and possibly boredom with the interminable job of loading just one truck with an inexhaustible capacity.

One fact does seem obvious: big trucks are not necessarily a trademark of efficient operation. If a city has narrow alleys where the trucks must operate, the Sanitation Department can confidently turn our "alley cats" loose without suffering a loss in operating efficiency.

Truck-Mounted Chipper

By FREDERICK R. RUNDLE
Superintendent of Public Works
Hempstead, N. Y.

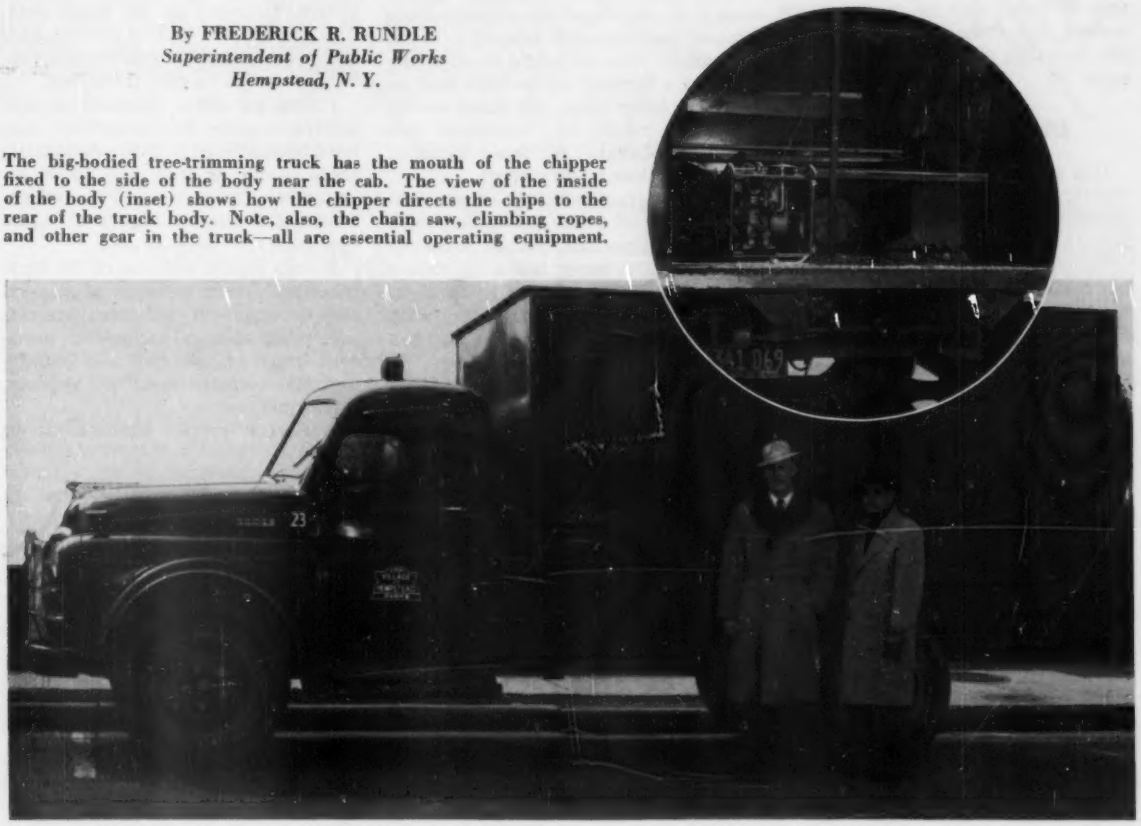
THE PARK DEPARTMENT and the Department of Public Works of Hempstead, N. Y., share the use of tree-trimming equipment with mutual benefit. Furthermore, the practice has resulted in the development of a tree-trimming truck combination that is as convenient as it is unusual.

We have supplied a Dodge truck and dump body with a large, sheet-metal box that has a 6-foot-square cross section and is 10 feet long. At the cab end of this box, we mounted an Asplundh chipper so that it discharges to the interior of the truck. The feeding hopper opens onto the side of the truck and has a sliding cover to protect it when not in use.

In the body of the truck, directly over the chipper, we have provided a storage space where we stow climbing ropes, belts, a Homelite chain saw, and other essentials for removing or trimming trees. On the outside of the truck, we have supplied racks to carry ladders and pruning saws. In all, the truck carries enough equipment to supply a crew of five men.

The rotor of the chipper has three hollow-ground blades. A set of these blades costs $35 and can be sharpened for $10. We find that after 40 hours of use, the blades need to be sharpened and ground.

The chipper has been particularly useful. It permits us to eliminate the need for one truck and operator required by our former method of operation. Other advantages that the chipper offers are the elimination of fire hazards from piled brush; the use of the chips as a green fertilizer under certain conditions; the processing of the chips into a compost by mixing them with topsoil and allowing the mixture to stand for a season or two. Needless to add, the chipper eliminates numerous trips to the dump and permits us to keep the street on which we are working to remain free of brush and debris at all times.



The big-bodied tree-trimming truck has the mouth of the chipper fixed to the side of the body near the cab. The view of the inside of the body (inset) shows how the chipper directs the chips to the rear of the truck body. Note, also, the chain saw, climbing ropes, and other gear in the truck—all are essential operating equipment.

AIRPORTS can be BETTER NEIGHBORS

By JOHN H. FREDERICK
Professor of Transportation
University of Maryland
College Park, Md.

AIRPORTS are vital assets to the communities they serve, but they also can be a nuisance to the people who live nearby. The chief nuisance factor is noise. People are afraid of these big modern planes, and the noise intensifies their fear. The two cannot be separated.

The tragic coincidence of three major accidents near Newark Airport, early in 1952, brought to a head a situation which had been developing not only in that particular area, but also affected many terminal airports throughout the country. Aircraft and airport operators alike could no longer simply ignore the fact that the noise of aircraft is disturbing to many in a wide area. Nor could they ignore the peril that does exist. The chance of a plane's crashing into [illegible] may be one in 10,000,

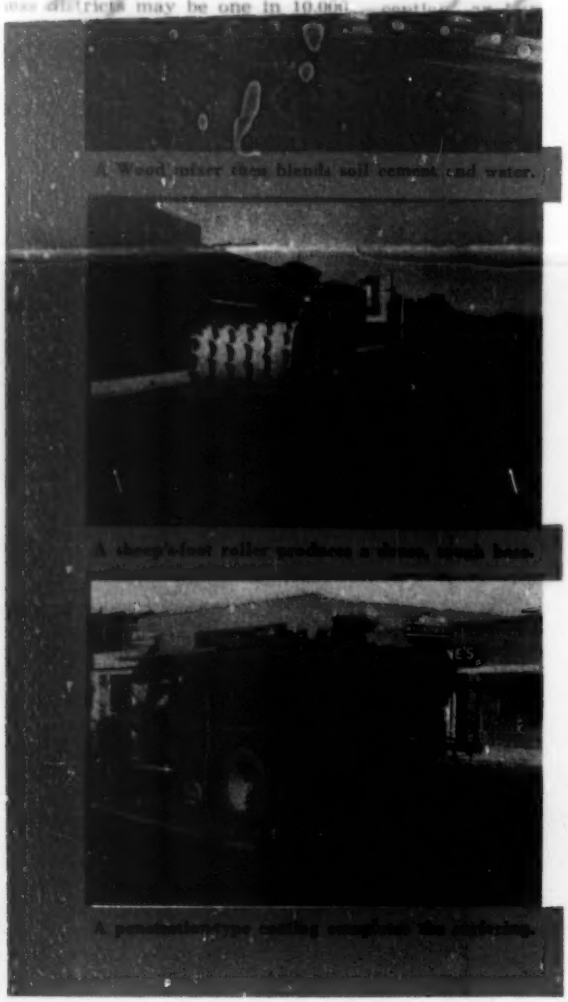
Airlines and other aircraft operators are governed by the orders and regulations of the CAA and the CAB and, in establishing their own operating procedures, must conform to prescribed standards.

Altitude Restrictions

The CAB has fixed the "minimum safe altitude of flight" over congested areas at 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet from the aircraft, provided that the pilot can, in case of emergency, land outside the congested area. It has, [illegible]

To reduce the noise in areas near some airports, maintenance motor run-up activities have been relocated and blast deflectors built to divert noise skyward. In some cases, it has been possible to use existing buildings and structures on the airport to serve as baffles. It has also been found that shrubs and bushes are fair sound absorbers if planted along the edges of an airport.

The "preferential runway" system is a practical way of reducing noise and increasing safety. Under this system, control-tower operators advise pilots which is the preferred runway to use. The runway pointing in or out over the least populated land gets first priority. The operators also take into consideration wind direction and velocity, dryness and [illegible]



A Wood mixer does blends soil cement and water.

A sheep's-foot roller produces a dense, tough base.

A pneumatic-type roller completes the rolling.

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The soil-cement base is 6 inches thick and contains 8% cement and 92% natural soil. When compacted, it produced a density of 115 pounds per cubic foot. To do the work, the contractor used a 1,050-gallon Rosco asphalt distributor, a Caterpillar grader to shape the street to proper cross section, a Wood mixer to blend the cement and soil, and a sheep's-foot roller to compact it. A 5-ton, steel-wheeled roller made the final finishing touches on the surface.

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2. Eliminating or curtailing the use of runways pointing in the direction of congested areas. This is partially accomplished by the system of preferential runways, but this will not work everywhere.

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Chicago Has Busiest Airport

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Chicago's airport also led the country in the handling of air carrier and Dallas, Cleveland, Atlanta, St. Louis, Albuquerque, and San Francisco.

An average of 1,920 aircraft either landed or took off every 60 minutes from airports during 1953, CAA finds. This is a 6% increase over the year 1952.

These figures are part of a study entitled *Federal Airways Air Traffic Activity*, available from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

17 Blocks is a Busy Program

Holton, Kans., improves between five and seven blocks per 1,000 people per year

By STANLEY D. FISHER, *City Manager, Holton, Kans.*

LAST YEAR, the Street and Alley Department of Holton, a community of 3,000 in northeastern Kansas, graded and surfaced 17 blocks of streets under the supervision of Ross McAllister, superintendent. If the 1954 program progresses according to plan, the department will surface 20 more blocks. And in 1955, those streets surfaced in 1953 and 1954 which show the need for maintenance will be seal coated, and construction of only a few more new blocks will be undertaken.

5.67 Blocks per 1,000 Population

By itself, the work load does not look big, but if you recognize that it represents 5.67 blocks per 1,000 population, the program begins to take on a more substantial appearance. The Street and Alley crew is staffed with a three-man, full-time team, including Superintendent McAllister, and one man who is employed for four months of the year.

Moreover, the details of the street-construction program do not tell the whole story. For example, double this number of blocks were improved by an application of crushed rock. In addition, eight blocks were treated with oil to prevent a dust nuisance. The department also cleared snow, picked up leaves and trash, spearheaded the city's annual clean-up campaign, and built park tables for our municipal park system. Every well-run city, like every well-run home, has to have a willing handy man. In Holton, this handy man is our Street Department.

To improve the 17 blocks of last year's program and the 20 blocks this year, we have established a procedure. Our crew first grades the ditches to give them clear and easy draining. Then the men bring the surface to grade, rolling and sweeping it, and patching any low spots that may be in evidence. They follow this with the application of MC-3 asphalt, repeating the treatment in three to five days, and sealing the surface with approximately 25 tons of washed chat per block. The road is then dragged, rolled, and opened to traffic. Any "bleeding" of the asphalt through the surface is corrected by a spot application of gravel.

New Equipment

Last year also saw new equipment added to the department, including a 2-ton dump truck, and a new motor for the Etnyre asphalt distributor. We have one other stake-body truck and an Allis-Chalmers rubber-tired tractor with a front-end shovel attachment.

Functioning as a street-cleaning department, our duties required us to remove and haul away 73 truckloads of dirt during 1953. In the winter, we ran snowplows on three separate occasions and hauled away 42 truckloads of snow. We handled 52 loads of leaves, 32 loads of trash, and 202 loads of branches and brush.

The city's 6-yard "alley cats" are fitted with Roto-Pac escalator-type bodies.

Philadelphia's "ALLEY CATS"

Narrow, 6-yard refuse trucks, designed for 6- to 9-yard-wide streets, turn in a surprising performance in a city-conducted collection test

By JOHN A. BAILEY, *Deputy Commissioner of Streets and Sanitation, Philadelphia, Pa.*

WE NOW HAVE a new species of "alley cat" that is making us take a fresh look at our refuse-collection program. This "cat" is a small, compactor-type refuse truck, of 6 yards capacity, that prowls the city's 6- to 9-yard-wide streets. In the old city, these passageways were alleys, but today houses face them. In the past, the city used horsedrawn wagons to make rubbish collections in these areas.

Under the leadership of Joseph P. Reilly, superintendent of automotive equipment, we started developing small, narrow-bodied refuse trucks for operation in these problem streets. Our first order was for 20 hydraulic-type, 9-yard bodies mounted on International Harvester chassis that carried 14-by-20, 18-ply tires. These units did not solve all the city's collection problems, but they were particularly effective on 14-foot streets where parking was restricted to one side.

For the extremely narrow streets, another solution had to be evolved. We asked for a completely enclosed, 6-yard body, mounted on a chassis no wider than 77 inches. We purchased four of these 6-yard units and our crews promptly christened them "alley cats." These collection trucks were put into service about the first of this year.

In connection with our development project, we conducted tests of 9-yard and 16-yard trucks to see which would fit our particular needs best. Although compactor bodies with capacities of 19 or 20 yards looked promising, they appeared to be practical only for rubbish. Unless we mounted them on dual-rear axles, we could run the risk of overloading them with garbage or ashes.

While making the test runs to determine the efficiency of the 9- and 16-yard bodies, we decided to assign one "alley cat" to the test area to collect the same material. We attempted this experiment in the interest of pure research, never suspecting that we were entering a "dark horse" in the competition.

As test data began to accumulate, we were amazed to find that the small 6-yard body outperformed a 16-yard unit. The circumstances were ideal for the small bodies. We were hauling to a nearby disposal area through streets that were reasonably open. Part of the area had been developed many years before and the streets were not paved from curb to curb, so that the maneuverability of the "alley cat" paid off. The biggest savings, however, was caused by the compaction that the small body could deliver.

Ten-Day Test Data

Our entire sanitation division is trying to interpret the results (see table below) of the tests so that we can plan our current program effectively. We cannot ignore the larger production obtained by these smaller bodies, incredible as it may appear. We must take into account that Philadelphia is currently engaged in a major in-

Ten-Day Test Data

Vehicle Types (cu. yds.)	Loading Time (lbs. per min.)	Capacity (lbs. per cu. yd.)	Weight (per load)	Daily Total (lbs. collected)	Loads (per day)
6	57	474	2,842	15,345	5.4
9	42	391	3,520	14,432	5.1
16	38	300	4,799	13,864	2.8
16	46	257	4,108	16,670	4.0

cineration program that will give us disposal sites near the center of each refuse production area, thus reducing the value of the extremely large collection bodies.

Perhaps the reason for the greater production is psychological. It may be that men work harder on smaller trucks and fill them more quickly. Furthermore, when a crew loads trucks with capacities of 16 yards or more, the men have to overcome the factor of human fatigue and possibly boredom with the interminable job of loading just one truck with an inexhaustible capacity.

One fact does seem obvious: big trucks are not necessarily a trademark of efficient operation. If a city has narrow alleys where the trucks must operate, the Sanitation Department can confidently turn our "alley cats" loose without suffering a loss in operating efficiency.

Truck-Mounted Chipper

By **FREDERICK R. RUNDLE**
Superintendent of Public Works
Hempstead, N. Y.

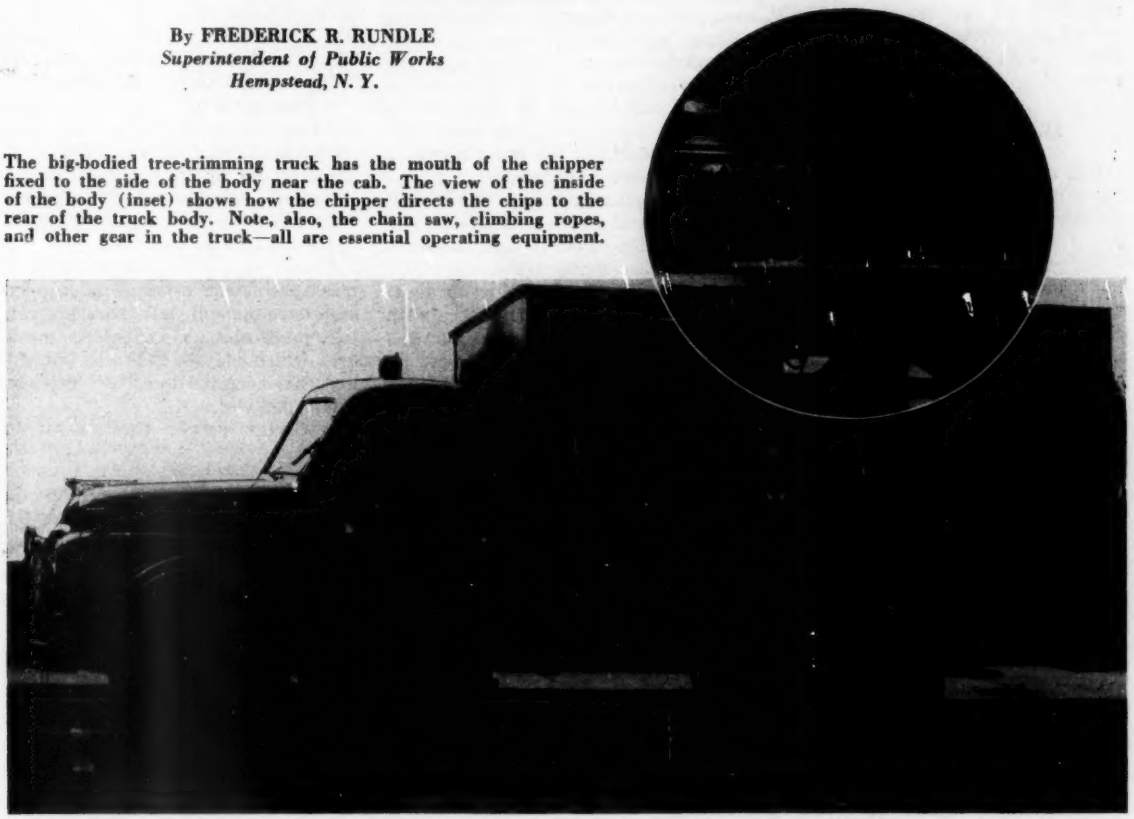
THE PARK DEPARTMENT and the Department of Public Works of Hempstead, N. Y., share the use of tree-trimming equipment with mutual benefit. Furthermore, the practice has resulted in the development of a tree-trimming truck combination that is as convenient as it is unusual.

We have supplied a Dodge truck and dump body with a large, sheet-metal box that has a 6-foot-square cross section and is 10 feet long. At the cab end of this box, we mounted an Asplundh chipper so that it discharges to the interior of the truck. The feeding hopper opens onto the side of the truck and has a sliding cover to protect it when not in use.

In the body of the truck, directly over the chipper, we have provided a storage space where we stow climbing ropes, belts, a Homelite chain saw, and other essentials for removing or trimming trees. On the outside of the truck, we have supplied racks to carry ladders and pruning saws. In all, the truck carries enough equipment to supply a crew of five men.

The rotor of the chipper has three hollow-ground blades. A set of these blades costs $35 and can be sharpened for $10. We find that after 40 hours of use, the blades need to be sharpened and ground.

The chipper has been particularly useful. It permits us to eliminate the need for one truck and operator required by our former method of operation. Other advantages that the chipper offers are the elimination of fire hazards from piled brush; the use of the chips as a green fertilizer under certain conditions; the processing of the chips into a compost by mixing them with topsoil and allowing the mixture to stand for a season or two. Needless to add, the chipper eliminates numerous trips to the dump and permits us to keep the street on which we are working to remain free of brush and debris at all times.



The big-bodied tree-trimming truck has the mouth of the chipper fixed to the side of the body near the cab. The view of the inside of the body (inset) shows how the chipper directs the chips to the rear of the truck body. Note, also, the chain saw, climbing ropes, and other gear in the truck—all are essential operating equipment.

AIRPORTS can be BETTER NEIGHBORS

By JOHN H. FREDERICK
Professor of Transportation
University of Maryland
College Park, Md.

AIRPORTS are vital assets to the communities they serve, but they also can be a nuisance to the people who live nearby. The chief nuisance factor is noise. People are afraid of these big modern planes, and the noise intensifies their fear. The two cannot be separated.

The tragic coincidence of three major accidents near Newark Airport, early in 1952, brought to a head a situation which had been developing not only in that particular area, but also affected many terminal airports throughout the country. Aircraft and airport operators alike could no longer simply ignore the fact that the noise of aircraft is disturbing to many in a wide area. Nor could they ignore the peril that does exist. The chance of a plane's crashing into densely populated residential or business districts may be one in 10,000, one in 100,000, or even one in 1,000,000, but that single odd chance does exist.

Divided Responsibility

One of the complicating factors in handling the airport problem is the division of responsibility. Under the law, the powers of the airport operator, be it a city, or another public body or individual, are limited to the land and airport structures. The operator's functions include the financing, planning, and construction of runways, utilities, terminal buildings, hangars, and the extensive physical plant required for the operation of an air terminal. The complete control of air traffic and aircraft approach procedures at airports is, however, under the control of the Civil Aeronautics Administration and the Civil Aeronautics Board.

The CAA operates the control towers, employs all the tower personnel, and furnishes all equipment for the direction and control of air traffic. Moreover, when it comes to the airport users, including the airlines, the airport operator leases ground and building space to them but has no authority or voice in the maintenance or operation of their aircraft.

Airlines and other aircraft operators are governed by the orders and regulations of the CAA and the CAB and, in establishing their own operating procedures, must conform to prescribed standards.

Altitude Restrictions

The CAB has fixed the "minimum safe altitude of flight" over congested areas at 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet from the aircraft, provided that the pilot can, in case of emergency, land outside the congested area. It has, however, made an exception—an important exception—to cover landings and take-offs. There it ranges from no height at all at the end of a runway up to 1,000 feet, as it is in other areas. In other words, there is really no "minimum safe altitude of flight" for those living or working close to an airport.

The aviation industry admits that airports tend to be noisy neighbors but recognizes that, though measures can and are being taken to reduce noise, the elimination of noise at its source is a long way off. In fact, with the future use of high-speed, turbine-driven propellers or high-thrust jet propulsion, there will be a tendency for the volume of noise to increase rather than lessen in these areas.

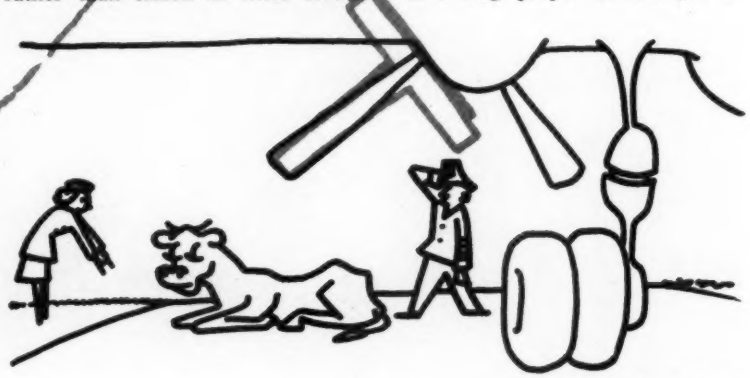
To reduce the noise in areas near some airports, maintenance motor run-up activities have been relocated and blast deflectors built to divert noise skyward. In some cases, it has been possible to use existing buildings and structures on the airport to serve as baffles. It has also been found that shrubs and bushes are fair sound absorbers if planted along the edges of an airport.

The "preferential runway" system is a practical way of reducing noise and increasing safety. Under this system, control-tower operators advise pilots which is the preferred runway to use. The runway pointing in or out over the least populated land gets first priority. The operators also take into consideration wind direction and velocity, dryness and braking efficiency of the runway, and possible hazards in the flight path. The pilot, however, still has the final authority to use the preferential runway or not, as he may think best.

Flight patterns, approaching and leaving airports, and on airways, also have been altered to avoid residential areas so far as it is safe to do so. Pilots are also instructed in and encouraged to use techniques of engine operation that lessen noise.

Even a partial solution of the basic noise problem is a matter of step-by-step development, but there are certain precautionary and safety measures which may be taken in improving the neighborliness of airports. These include:

1. Giving proper forethought to



flight patterns when the airport is being built or enlarged, bearing in mind that newer aircraft will be heavier and faster and that air traffic will increase in years to come.

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Chicago's airport also led the country in the handling of air carrier and itinerant planes, as distinct from local traffic. Other cities ranked as follows: New York (LaGuardia), Washington National, Los Angeles, Dallas, Cleveland, Atlanta, St. Louis, Albuquerque, and San Francisco.

An average of 1,920 aircraft either landed or took off every 60 minutes from airports during 1953, CAA finds. This is a 6% increase over the year 1952.

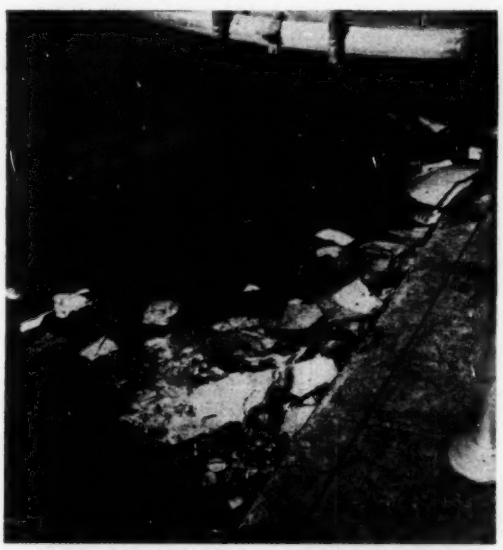
These figures are part of a study entitled *Federal Airways Air Traffic Activity*, available from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. A copy of the report may be obtained for 50 cents in check or money order made payable to the Treasurer of the United States.

What's the Hollerin' About?

"HERE'S what we've been hollerin' about," the Chamber of Commerce of Waterloo, a city of 66,000 in central Iowa, wrote its members, stressing the need for cooperation with the Department of Streets. No matter how hard the street-cleaning crews worked, the Chamber pointed out in a plain-spoken letter, they couldn't keep the streets clean if merchants insisted upon sweeping debris into the curbs after the sweeper had gone by. This thoughtlessness, the letter said, could be an important reason for customers finding their way to suburban stores.

The message carried the accompanying photograph of a street in front of a prominent Waterloo shop that was strewn with litter swept there by the merchant *after* the street had been swept.

According to Street Commissioner Carl C. Fagerland, results have been uniformly good.



An illustration of the type of street littering that prevails in Waterloo, Iowa, that the Chamber of Commerce of that city is most determined to eliminate completely.

City Tells Its Story

Edited by PAN DODD WHEELER
Executive Director, Government Public Relations Association

Presenting: A Formula For Financial Reporting

FINANCIAL REPORTS of the future will be made by city officials in a summary, one or two paragraphs in length, is the prediction of a Certified Public Accountant who works with municipal finances. Currently, a New England village, which customarily has issued a 500-page document, has heralded its streamlined 50-page fiscal report. Both the prediction and the village report indicate the trend to simple, easy-to-read, understandable reports of city financial operations.

Two "Audiences" to Please

Either to meet legal requirements or because they choose to do so, the treasurer or finance commissioner in most cities makes a financial statement at the close of each fiscal year. In practically every city this statement goes to the governing body and other city officers. In many cities, the responsible municipal officer reports also to the general public. For some communities the financial statement is a part of the over-all report on city operations (a full-fledged "annual report") . . . in others, the financial statement is a document unto itself.

Based on what representatives of each of the two report-audiences—officials and the citizens — say they want to know from a financial report, and based on what progressive cities are presenting, here is a formula for financial reporting. It is adaptable for a financial report, alone, or for inclusion in an over-all report on city operations.

Citizens want to know "how the city stands financially." They like to understand how their own, individual, tax payments were a part of the total city financial picture.

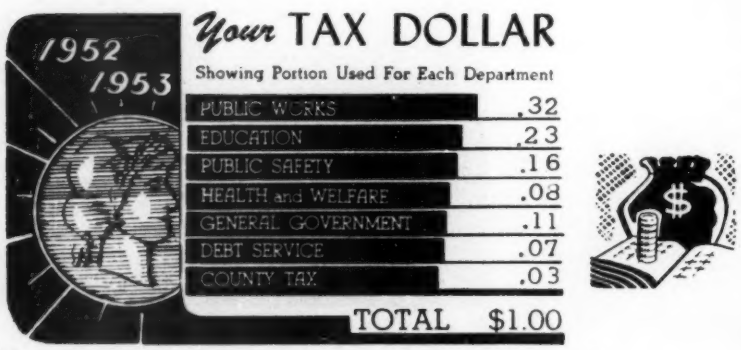
Make It "Intelligible"

Citizens find "facts" alone are "too dull" and technical phraseology "unintelligible." They want the "whole story" but they want it "in a nutshell." The formula attempts to meet those requirements.

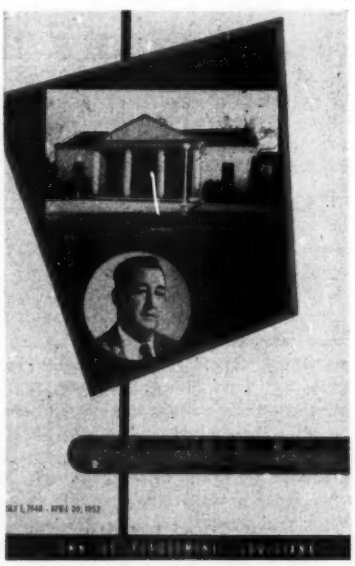
While city officials have a clearer understanding of municipal finances than the citizen, they welcome any assistance in "interpreting the figures" and in making data "meaningful." They feel they must "keep up" with the "status of city fiscal operations" but are grateful for visual aids and explanations which makes the status "easier to grasp." The formula for city official presentations takes cognizance of this.

Pictures Better Than Words

The formula contemplates that much of the material to be included in a financial statement may be presented better pictorially and with the use of visual materials than by words and figures. Decorative effects in a



Lewiston, Maine, keeps the dollar-breakdown simple.



Plaquemine, La., financial report cover.

VILLAGE HALL
WINNETKA, ILLINOIS
JUST A FEW WORDS ABOUT THE VILLAGE SERVICES YOU RECEIVE
through its administrative
a wide variety of direct
cents of your tax
$$$

The new type of calcium chloride may be transferred from the truck to the storage bin at the rate of 18 tons per hour. (Left) Chloride flows easily from chute to the distributor truck.

A New Idea for ICE CONTROL

Midland, Mich., uses a special calcium chloride without abrasives to increase the effectiveness of snow removal and ice-control work

By C. A. JOHNSON
City Engineer
Midland, Mich.

FOR 20 YEARS, our ice-control program was based on the application of abrasives treated with calcium chloride flakes. On an average, we spread approximately 600 cubic yards of abrasives per year, and considered our program good.

But now we have available a new form of calcium chloride that has completely eliminated the need for abrasives. At no extra cost, we spread this new calcium chloride to obtain faster, more positive, and longer-

lasting action, even at temperatures in the zero range.

Midland is located in the central section of the state's lower peninsula. A recent annexation program increased the city from a population of 14,300 and a total of 67 miles of streets to a city with a population of 19,500 and 107 miles of streets.

This city is also the home of the Dow Chemical Company, a leading chemical manufacturer, who has recently perfected a new pellet-form of calcium chloride, trade-named Peladow. This material may now be shipped, stored, distributed, and otherwise generally handled in bulk. The significance of the bulk factor—as opposed to individual bags—is indicated by these facts:

1. In bulk form, calcium chloride may be purchased at a lower price than ever before.
2. A 22-ton shipment of the material may be unloaded with a saving of 18 man-hours of labor.
3. Distribution of the material for ice control requires less time and less manpower than with the old material.

This adds up to a considerable savings in dollars and cents which is available to any city, whether or not abrasives are used in conjunction with calcium chloride.

Quantities Used

The amount of calcium chloride applied varies between 1/10 and 1/20 of a pound per square yard, depending upon the depth of the ice and the temperatures. For average ice conditions, 500 pounds would serve an area that is approximately a mile long by 18 feet wide.

Another advantage made possible by this form of the chemical is the economy effected in spring cleanups. This year we are saving $1,500 in the cleanups of curbs and gutters and an additional $1,000 that would normally be spent for cleaning abrasives from catch basins.

In order to make proper use of the pellet type of calcium chloride, it is necessary to install new facilities, the cost of which is soon written off by the savings made possible. Midland was the first city to install such facilities, and hindsight has shown us several improvements in our "pioneering" setup. These will be described later.

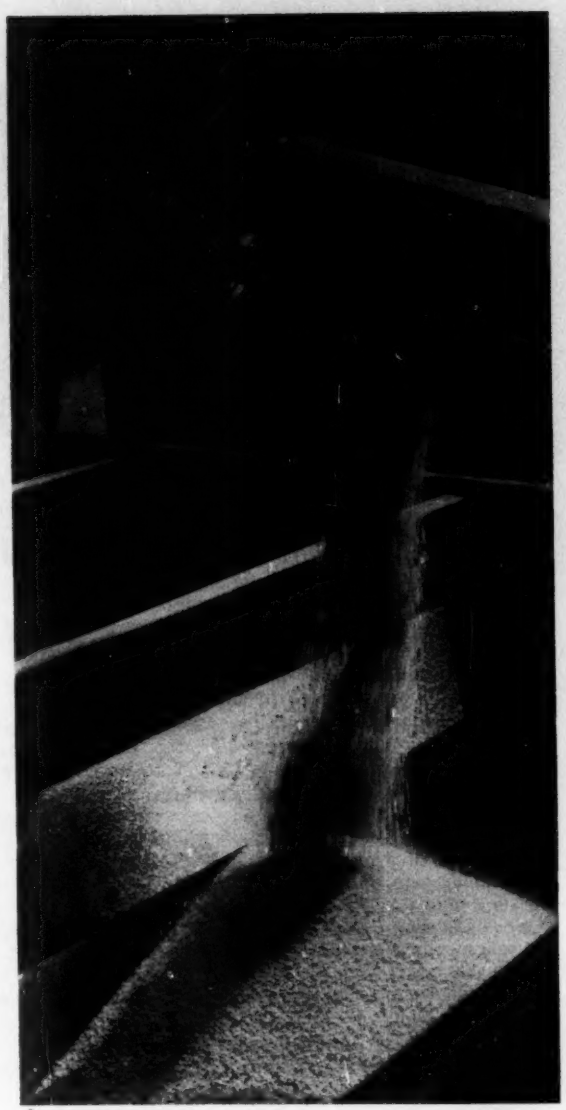
Near our city garage, we erected a circular steel tank, 20 feet in diameter and 20 feet high. The tank is coated by the manufacturer with a special baked-on silicone resin. Trucks deliver the bulk Peladow to the storage tank from the Dow Chemical Company's plant at Ludington, 125 miles away. The pellets are loaded through an opening near the top of the tank by means of a Wyatt Industrial Eleveyor. This machine, which is similar to a grain conveyor, is capable of unloading at a rate of 18 tons per hour.

One-Man Operation

A dugout ramp then permits our distributor trucks to back up to the unloading chute which is located on the bottom side of the tank. One man can handle the entire operation of filling the tank, loading up the trucks and distributing the chemical. Our distributor trucks all employ V-type boxes with centrifugal spreaders. The cost of the storage tank and ramp amounted to approximately $4,600 which we estimate we will amortize in two years. The simplicity and ease of handling pellet-type calcium chloride in bulk, as compared to the bagged product, cannot be overemphasized because bulk handling eliminates so much labor and speeds up every phase of our ice-control operation.

On the basis of our experience, we would not recommend the dugout ramp for the purpose of gaining truck-access to the unloading chute. Instead, we believe it would be more efficient to elevate the storage center, either by stilts or by the use of a sand-filled "false" bottom. In either case, the purpose would be to locate the unloading chute 9 feet above the ground so that distributor trucks could draw alongside the tank for loading. Such an innovation would further increase the speed and ease of the operation.

One final and important point: the faster and more efficient ice-control service which Peladow makes possible has given a definite boost to our public relations. This improvement has been noted by our city manager who has said, "I believe there is a definite relationship between our use of Peladow and the noticeable reduction in complaints about icy streets and traffic hazards which we have experienced in the past year.



Pellet-type crystals of calcium chloride are easy to handle and permit use in bulk rather than in sacks. This, and the elimination of the use of abrasives, has allowed many economies.

Ideas from Industry for Municipal Supervisors

By ROY ELMS
Personnel Manager, Baytown (Texas) Plant
The General Tire and Rubber Company

IN MOST municipal organizations, as in industrial and business organizations, there are groups of employees whose duties may be classified either as staff functions or as line functions. By staff people we mean personnel —legal, medical, engineering, etc. By line people we mean those in line of authority beginning at the top and progressing downward to first line supervision. In a municipal organization the top authority would probably be the city council, with the city manager next in line of authority, followed by the department heads and then the various foremen in the different departments. These foremen may be called foremen, supervisors, chiefs, or some other appropriate title. In referring to supervisors, it is meant to include supervision in its broadest meaning, defined to be "anyone who directs the work of another."

Duties, Faults, and Problems

There are many duties and responsibilities of supervisors. Some of them may be listed as: organizing their work, delegating authority, assigning work, selecting workers, maintaining safety, training workers, controlling costs, giving orders, and carrying out orders.

While most supervisors are doing a good job, some of them have faults such as: failure to assume responsibility, unjust criticism of other supervisors, holding back information, displaying favoritism, passing the buck, making promises they can't keep, reprimanding workers in public, losing temper, not giving credit where due, and giving improper orders.

Supervisors also have problems that make their job a challenge or a burden, depending on how they accept these problems. Some of the problems include: lack of confidence in loyalty of workers, meeting work schedules, maintaining proper inventories, keeping the workers on their toes, proper training, individual differences of workers, safety, taking care of other people's mistakes, absenteeism, and giving orders.

Giving Orders

In looking back over the duties, faults, and problems of supervisors, the term "giving orders" is found in all three lists. An order properly given should answer the following questions: What is to be done?, how is it to be done? (this is especially important if you have inexperienced workers or if some change is made from the usual way of doing things); why is it to be done or done this way?, when is it to be done?, where is it to be done?, and who is to do it? Special care should be taken in giving orders if there are any unusual cautions to be taken or hazards to look for.

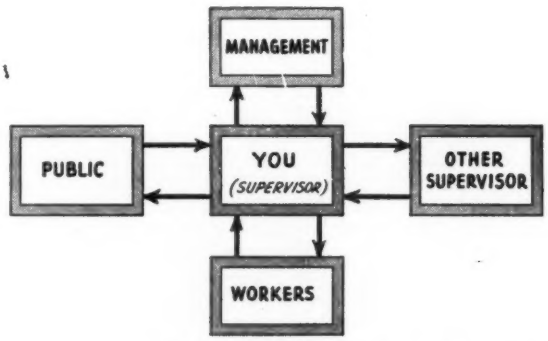
Orders may be either written or oral, but for the first line supervisor the oral order is used more often. There are several types of orders that may be used under different circumstances and to different kinds of workers. These are the command type (*You do*), the request type (*I would like you to do*), the suggestive type (*Shouldn't it be done?*), and the question type (*Will you do?*). The last three named types will probably bring about better relations between supervisors and workers than the command type, especially if used all the time.

The manner in which an order is given has an influence on how it is carried out. The proper tone of voice and the correct facial expression will often convey to the worker as much or more than the words used. Any order, however, should be given in suitable wording—in terms that the person receiving the order will understand. It should contain complete, logical instructions, so that there is no misunderstanding. It should be given in a way that will instill confidence in the worker receiving the order. It should be given through proper channels in the line organization.

Accepting Orders

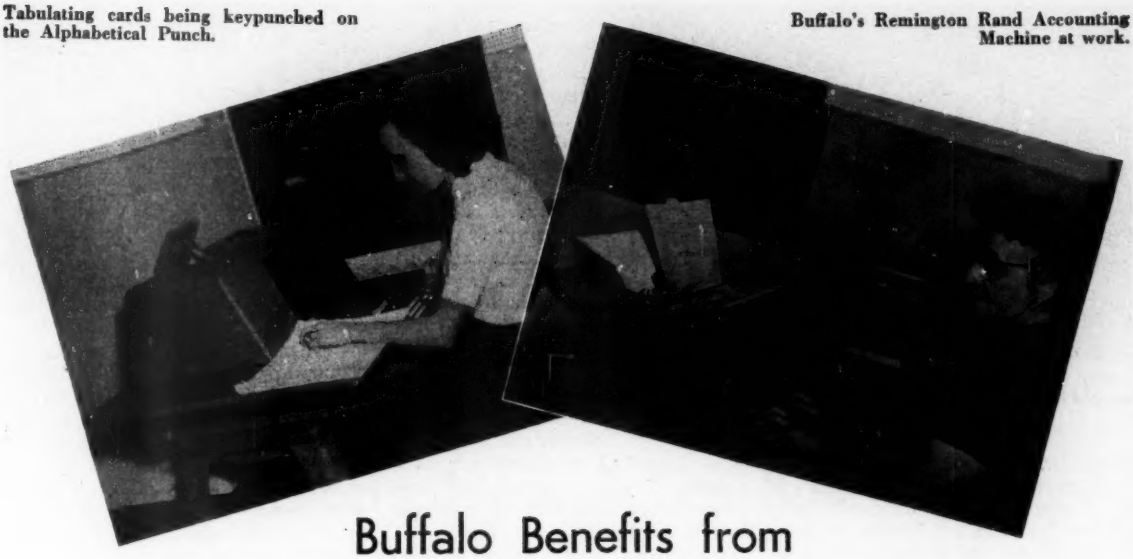
In addition to giving orders, there are obligations when accepting orders. Before accepting an order as final, a supervisor should be reasonably sure he can carry it out. He should discuss his orders with his superior until the order is acceptable. He should also be willing to do this with the person to whom he is giving the order. He should report back to his superior if there is any difficulty in carrying out the order.

Each supervisor in any department should consider each department, including his own, as part of the over-all operation. This will lead to better cooperation between supervisors and between each department of the organization. Cooperation may be pictured as a two-way transaction between the supervisors, management, other supervisors, workers, and the public, as shown below:



Tabulating cards being keypunched on the Alphabetical Punch.

Buffalo's Remington Rand Accounting Machine at work.



Buffalo Benefits from Mechanized Accounting Procedures

By CHESTER KOWAL
Comptroller
Buffalo, N. Y.

DURING RECENT MONTHS Buffalo, N. Y. (population 585,000), has witnessed a graphic demonstration of the fact that mechanized centralization of fiscal control can work as smoothly, efficiently, and inexpensively for a municipality as it does for manufacturers, department stores, food processors, service industries, and the like.

As the new Comptroller, on January 1, 1952, I took over an accounting control system that had been in use since 1928 with only minor revisions. Always a firm believer in the efficiency and thriftiness of centralized control, as well as in mechanization of accounting to the fullest extent feasible, I made conversion to such a procedure a priority project. Experience told me that if the system were ever to be changed, the Comptroller would be the man who would have to take the initiative.

Comprehensive Plan Drafted

Consequently, a fully comprehensive plan for a modern, centralized mechanical system was drafted and presented to Buffalo's Capital Expenditures Committee early in 1952. In this, the comptroller's office was supported by the recommendations of an Elliot Survey of the city's overall administration made a short time previously, one section of which dealt at length with the urgent need of overhauling the Comptroller's Department.

The Capital Expenditures Committee agreed on the need for modernizing the department as speedily as possible, and we immediately proceeded to seek bids on the equipment required.

The Remington Rand tabulating equipment selected started arriving in April 1953; was soon installed, and we began operating our Appropriations Accounting on a centralized mechanical basis on July 1, 1953. By April of 1954 we began our payroll operations covering all City of Buffalo employees on this equipment.

Other accounting operations will be centralized and be mechanized as quickly as possible. Transitions will be phased in at intervals of not less than six months. Thus, two and a half to three years will elapse before the machines are in full use for payroll; water, real estate tax, and other billings; inventory control; and appropriation accounting. The operation of a performance type budget, with its underlying cost-accounting techniques now in process of development, should be a natural for this mechanized accounting equipment.

We feel the system adopted has everything needed for efficiency and cost reduction in municipal fiscal operations, and are certain our centralized mechanical procedures will result in considerable savings to taxpayers when all accounting procedures have been integrated.

We know this because we are already making impressive savings with the new system on appropriation accounting alone. Prior to its installation, ledger cards were maintained in the comptroller's office covering all fixed items or control ac-

Chester Kowal and Miss Rose Amato observe the Monthly Statement being produced on alphabetical tabulator.

Under the new accounting system punched cards are arranged in alphabetical or numerical sequence on the Sorters.

counts in the budget. Each department prepared a detailed statement, on a monthly basis only, showing all line items of the budget by title of the account, appropriation amount, expenditure to date, unexpended balance, outstanding encumbrances, and the unencumbered balance.

Obviously, preparing such statements necessitated keeping separate books in each department covering encumbrances, liquidations, and payments for each of the line items. After completing their detailed monthly statement for the department, they would submit it to the comptroller's office for certification as to its accuracy, and for possible corrections. This would generally take several days, depending on the work load. It was time consuming, and costly. In many instances, particularly during vacations and protracted illnesses of department personnel, when these statements were delayed, the comptroller's office was left without adequate supporting statements of department appropriation activities.

Under the new tabulating-machine system, the comptroller knows every day the exact amounts committed or expended for each budget line item, and the balance available. Under centralization, he continues to approve all purchase orders, payrolls, contracts, etc., involving the appropriation accounts, before commitments are made, so that aided by the machines, he is kept fully informed of every budgeted appropriation account at all times. Payment of accounts is also greatly simplified.

Line item Appropriation Balance Tabulating Cards are punched at the start of each fiscal year for each line item in the budget. Groups of these tabulating cards make up totals representing the control accounts (fixed items). These are balanced with the control accounts set up on Accounting Machine Ledger Cards used for approving purchase orders, etc.

Daily, as detailed encumbrance items, liquidations, and payments, transfers and adjustments are posted to the control accounts, a detailed supporting transaction Tabulating Card is automatically created as a by-product for each detailed line item account. This is done on a Synchro-Matic unit. The accounting machine on which the posting is done is hooked up electrically to a punch, which automatically produces the punched card for each line item to be posted.

Each day the detailed entries are posted to the control accounts, thus providing a predetermined control figure for statements that will be automatically prepared by the comptroller's department at the end of each month.

The detailed by-product transaction cards are used to tabulate a daily journal of appropriation transactions, on which is recorded department, account, date, reference number, encumbrance, payment, vendor number, invoice number, and expense code. This system not only establishes the ability to pay the vendor, but may also be used to analyze the need for such diverse miscellaneous articles as cleaning materials, botanical supplies, motor-vehicle-maintenance items, etc.

Payment Transaction Cards

Payment transaction cards used in the preparation of monthly statements serve as source data for additional applications, such as the printing of voucher-type warrants used for payments to vendors. During this particular tabulation, a warrant summary card is automatically produced on a Summary Punch for subsequent use in printing the register of warrants to vendors.

The equipment used for appropriation accounting is also capable of producing an analysis of expenditures, an operation to be added to the present procedure at a later date. This feature is a valuable aid in the preparation of future budget requests, and serves well as a check, an essential tool, in subsequent purchase authorization.

With the mechanized payroll-accounting system now under way, instead of each department requiring personnel to type up payrolls only a certified attendance record for the pay period involved will be needed for processing the complete payroll, payroll warrants, and associated records. Each city worker (now getting no earnings statement) will receive a complete record with every pay warrant, showing in full detail gross earnings and all pay deductions which produce the net amount of his paycheck.

Although in a detailed sense the centralized system provides the day-to-day, month-to-month fiscal control required by Buffalo, from a broad standpoint it also arms the comptroller's department with a handy tool for realistically and mechanically analyzing upcoming budget requirements in terms of past experience, thereby making it much easier to determine whether new budget requests are in line with previous expenditures.

The equipment was purchased outright because a close evaluation revealed that in the long run it is cheaper to own the machines. In analyzing the situation, we determined the existence of a five-year break-even point, found that for the following five years cost of using the machines will be far less than if rented, and that at the end of the equipment's life expectancy (10 years) the machines will still have possible trade-in value, thus further reducing operating costs over their life span.

When payroll centralization is completed, it is estimated that upwards from 25 full-time employees will be available for other basic, needed city work. For example, during the last few years a number of new city agencies have been created, the heads of which are without adequate clerical and administrative personnel. There are also working committees, such as the Capital Expenditures Committee, which up to the present time has been operating with limited assistance from the comptroller's office, and which obviously could do a better job if it had available at least a full-time administrative assistant with accounting experience for the preparation and the filing of project data, progress photos and charts, appropriation and expenditure data, comparative cost figures, etc.

This process of transferring the displaced, highly skilled employees to positions of equal importance open in other city departments will be continued as additional accounting operations are brought under centralized control and mechanization.

PHOTO AT LEFT COURTESY OF HARPER LEIPER; CENTER, MP PHOTO

(Left) The attractive exterior of Houston's up-to-date police headquarters. (Center) Staff members are able to keep prisoners under constant observance with the television system. (Right) A view of the streamlined dispatcher's office.

Houston's New Police Building

HOUSTON'S police department moved into its new building on August 16, 1952, but the build-up of new equipment has been a gradual one. The 6-story limestone and masonry building houses all city law-enforcement facilities, except the police-training school and the garage and repair shops, which are in the rear.

The nerve center of the building is on the sixth floor, where the department's communications center is located. The dispatcher's office is the relay point from which police calls are received by phone and transmitted to service units in all areas of the city. Three officers handle the incoming calls and two officers dispatch calls to radio cars.

In event of emergency and for future expansion there are enough facilities on hand to double this staff.

The communications center also houses radio transmitters which send and receive messages to and from law-enforcement offices throughout the country. A teletype system correlated with this service transmits and receives messages.

How TV Is Used

Houston is one of the few cities that has television available for keeping prisoners under control. There are television cameras in the basement booking room, in the cell blocks and jail dining rooms. With receiving sets in the chief's office, the press room and the communications center itself, prisoners are under constant observance.

A mobile unit also has a place in the police department's expanding television system. The mobile unit is a van mounted on a truck chassis and fully equipped with TV cameras, radio, sound equipment, and floodlights.

The still unfinished police crime laboratory on the fourth floor of the building is directed by a trained chemist. Here are made ballistic tests, analyses to show the alcohol content in blood, and microscopic studies.

Crime-Prevention Activity

The new police building has provided at long last a physical separation of the crime prevention bureau, which handles juvenile offenders and lost children, from the ordinary police routine. Private interviewing and counseling rooms are now available and children who for one reason or another are taken to the crime-prevention division no longer are in close contact with adult offenders. In 1953, there were 9,000 such children.

Three corporation courts occupy the first two floors, with a line-up room on the third floor and a large assembly room on the second floor. A projection booth is available on the second floor.

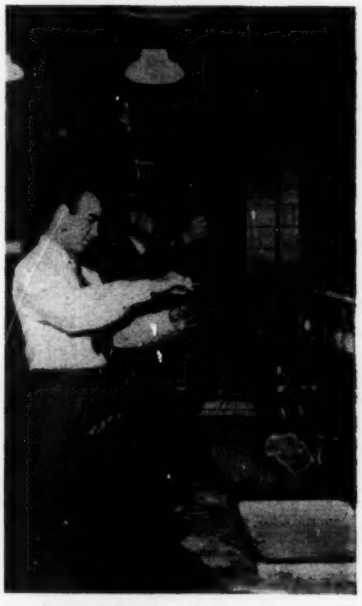
An information center is located on the first floor lobby to direct citizens to the proper officers in the building.

A force of 132 police department men and women work in the big police administration building, in addition to 111 auxiliary helpers. The training school and maintenance shops are manned by seven police officers and 31 auxiliaries. The police department has on its payroll, in all, 785 officers including 96 part-time school policemen.

In an adjoining building is the police training school, which includes classrooms, a library, a gymnasium, and a physical therapy room. Police trainees are schooled for 13 weeks before going to work as probationary patrolmen.

The new police plant represents an investment of $3,755,681, including $255,814 for the site in 1948. Other costs were $2,851,014 for construction, landscaping fees and architects' fees for the administration building, training school, maintenance shops and garage and a 150-foot steel radio tower, and $648,873 for equipment.*

* Information furnished by Tax Research Association of Houston and Harris County, 812 Union National Bank Bldg., Houston 2, Texas.



Members of the crime laboratory at work.

The Enditrol unit is shown on the piping in the right foreground.

Hydrogen Zeolite End Point Detector

An automatic, electrical device that determines the end of an operating run in water plants

THE END POINT in the run of a hydrogen-zeolite water-treatment unit can now be determined as accurately and as dependably as an alarm clock's ringing at 7 in the morning, with the new Enditrol on the job. In the past, no suitable automatic device was available that would indicate the end of the operating run of a hydrogen zeolite exchanger. The terminating point had to be detected by chemical titration or by arbitrarily stopping the run when a fixed volume of water had passed through the unit.

The hydrogen-zeolite exchanger is used extensively in boiler feed-water treatment, in the treatment of water used in diesel engines, and to a limited extent for recarbonation in the softening of water in municipal supplies. It differs from the sodium zeolite exchange units in that it will remove not only the hardness in the water but also the sodium and reduce both the alkalinity and total solids content.

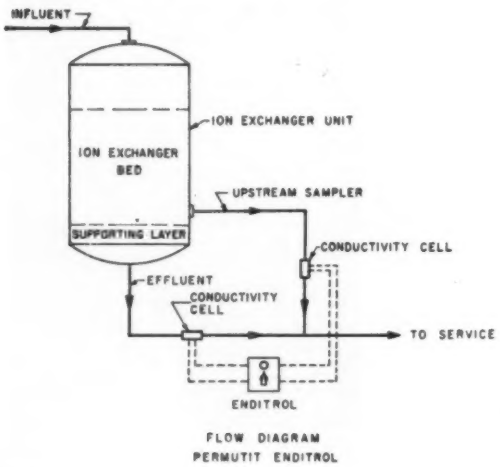
Hydrogen Zeolite System

In the hydrogen zeolite system, the hydrogen in the zeolite exchanges place with the calcium, magnesium, and other products, leaving them trapped on the beds and releasing carbonic, hydrochloric, and sulphuric acids. In most cases, the carbonic acid will predominate. By aeration of the treated water, carbon dioxide will be released and almost completely removed. The effluent may then be demineralized by passage through an anion exchanger; or it may be neutralized either with an alkali or with the effluent of a sodium zeolite softener.

The system works well except for its inability to determine automatically the end of the run. Chemical titration is tedious and labor consuming, and the running of a fixed volume through the unit is often wasteful and unreliable. The need for an automatic device has long been felt.

Obviously, if an electrical device could be developed for this purpose, it could be used not only for indicating the end of the operating run but also for automatically initiating the operation of automatic regeneration equipment. To answer this need, Enditrol was developed by the Permutit Company, of New York City.

Enditrol takes advantage of the fact that a columnar bed of ion exchange material, when operated so that the flow passes from the top of the bed to the bottom first exhausts its useful exchange capacity at the top. This exhaustion then slowly proceeds downward in the course of the operating run. During the bulk of the run, the free mineral acidity of the effluent remains virtually constant, but on approaching the end of the run, it decreases rapidly. For most uses, the operating run terminates when the free mineral acidity



FLOW DIAGRAM
PERMUTIT ENDITROL

The new end-determining device fits conveniently into any typical hydrogen ion exchange unit.

falls to 90% of the constant figure that is maintained during the bulk of the run.

Since decreases in acidity proceed slowly downward through the bed during the run, it appeared that if samples were drawn off at a level just above the bottom of the bed, the differences in acidity between these samples and the final effluent could be used to indicate the end of the run. Therefore, experiments were made with taps inserted at levels at various distances from the bottom of the bed. Depending largely on the composition of the water and the specified end point of the run, the tap may, in practice, range from about 4 inches to 8 inches above the bottom of the bed.

A small stream of water drawn continuously from this tap during the operating run passes through a conductivity cell. Its conductivity is compared, in the Enditrol, with the conductivity of the effluent from the bottom of the exchanger. During the greater part of the run, both are nearly identical. But since hydrogen ions have an appreciably higher conductivity than the metallic ions of the calcium, magnesium, and sodium that they have replaced, the effluent near the end of the operating run has a higher conductivity than the upstream sample taken from the tap.

Depending upon the position of the upstream tap, the ratio of the conductivity of the effluent to that of the upstream sample may range from 1:1.2 to as much as 1:3.0. Since the Enditrol operates not on the conductivity of the effluent but on the ratio of the conductivity of the effluent to that of the upstream sample, waters of variable composition may be handled as accurately as waters of constant composition.

The Enditrol may be equipped with a relay so that it signals the end of the run by an alarm bell or light; or with electrical controls so that the recharge of the ion exchange unit is completely automatic.

While this application deals with hydrogen cation exchangers, the Enditrol is equally applicable to the operation of anion exchange units. It is especially of value in the operation of strongly basic anion exchangers in demineralization installations where silica removal is so vastly important.

The first task to which the air compressor was assigned was the opening of a pavement, for which it powered two hammers.

The compressor then stepped back while the backhoe took over to make the excavation. Note special pipe fitting (rear).

Plenty of Work for the Air Compressor

Erie, Pa., shows how the right mechanical equipment makes installation of tough water-main extensions easy

IN THE INSTALLATION of a 30-inch water-main extension for Erie, Pa., the air compressor unit proved so valuable that it had to work overtime. The compressor is a Jaeger, able to deliver 125 cubic feet per minute, and is mounted on rubber tires for quick portability. The installation required the use of Lock Joint prestressed-concrete pipe, which was connected to an existing 30-inch steel main.

The first task of the air compressor was to power a pair of hammers that broke up the pavement. The compressor then rested briefly while a Wayne backhoe excavated the trench. When the compressor went back to work, it supplied power to a Wachs National pipe saw that quickly and neatly cut the pipe so that a valve could be inserted to receive the Lock Joint pipe.

To keep the work neat and efficient, a small Jaeger gasoline-powered water pump kept the trench dry. The compressor also furnished air for kerosene-heating equipment that melted down the jointing material.

The operation was directed by J. D. Johnson, superintendent of water. It was performed on contract, held by Alpha Construction Corporation, of Pittsburgh, Pa. Erie, a Great Lake city, has a population of 131,000.

Cutting out a section of pipe to receive the new valve and fitting is a simple matter when the pipe saw does the work.

Planning for Small

Corona, Calif., promotes light manufacturing

THE SHIFTING of business and industry to the West Coast following population migration to the western and southwestern regions of the United States has converted many a country town into a small industrial center. Most western cities have welcomed the new business development which is stimulated by the desire of the manufacturers to locate their plants near the new clusters of population.

In many instances, however, cities were caught by surprise by this movement and found themselves entirely unprepared, or at least inadequately equipped, for the inmigrating industry. Traffic congestion, lack of standard housing, overtaxing of utilities, and land-use depreciation are regrettable results of this condition.

Principal Obstacles

Among the principal obstacles preventing the orderly industrialization of small communities ordinarily is the lack of capital and consequently the lack of effective controls on the part of the promoting community. Industry has long learned to appreciate the value of the planned and rigidly controlled industrial district sponsored by a financially strong developer. However, it is not always possible to find such an entrepreneur at the very start of an industrialization venture.

Prevailing Trend

Corona, Calif., a city of 12,000 people located in the charming citrus region southeast of Los Angeles, found itself in this position. Industries have been and are being promoted in the general Los Angeles region. The citizens of Corona felt that their city could substantially benefit from this prevailing trend, provided ways and means could be found to make Corona attractive to industries.

The city administration through its Manager and Planning Commission worked jointly with the Chamber of Commerce and the Real Estate Board on the project. Since no substantial capital could be made available to finance land acquisition and actual development of an industrial district, other means had to be discovered to further the desired growth. These means were found in the planning laws of California which, properly applied, offer many possibilities to offset the advantages of land purchase and private control at the early stages of industrialization.

After considerable study and discussion with business groups, it was decided to base the industrialization project on the development of a so-called precise area plan. Within the context of the California planning laws, a precise plan is a development program which may go beyond the customary limitations of zoning, setback, and subdivision controls, as it may include details of the physical features to be promoted and precise standards under which the development may take place.

The precise area plan which was developed for the City of Corona was the result of various analytical and statistical studies of the city's development potential. These studies indicated that the city could double its population on the basis of a density ratio of approximately 10 persons per residential acre without jeopardizing its very important citrus agriculture.

It was found, also, that transportation facilities and utilities could easily be expanded to accommodate new industrial plants. Furthermore, it became quite obvious that industrialization would substantially broaden and stabilize the city's tax base and economy, provided adequate sites could be delineated within the city limits.

Framework of Comprehensive Zoning

In order to properly integrate industrial areas into the city's land-use pattern, the general zoning plan and its subsequent regulations were revised and rules were adopted to govern industrial growth. The zoning ordinance establishes a special industrial district which, in addition to the general zoning requirements, is subject to the specific conditions of the precise plan. Residential construction is expressly prohibited in this particular zone district.

The principal features of the zoning ordinance with respect to industrial controls are the express exclusion of certain types of establishments considered detrimental to the city's already established land-use pattern, and the imposing of certain standards of industrial performance. These standards, as well as the express exclusion of certain plant types, are designed to encourage the small and medium-sized plant of the light manufacturer.

Performance Standards

Performance standards are highlighted by some of the following rules. The general formula for noise abatement, for instance, is that noise must be so muffled as not to become objectionable due to intermittance, shrillness, or beat frequency. It is measured in decibels and the basis for measuring is the locational background noise. The maximum of smoke premissive under the ordinance is the equivalent of unit No. 2 of the Ringelman Chart for periods aggregating 4 minutes in 30 minutes. Regulations concerning gas, odor, dirt, dust, and glare are also provided. Greenbelts of prescribed width and height are required in addition to special setbacks for those industrial users who adjoin other more restrictive zone districts.

The industrial tract, which is governed by the regulations of the precise plan, comprises approximately 150 gross acres. It is strategically located in northwest Corona where convenient access to existing railroad facilities, trunk sewers, and a programmed freeway can be provided. The precise plan, a sketch of which is shown here, determines ingress and egress to freeway and railroad. Incidentally, while the freeway is not in place, good access to U. S. Highway 91, which parallels the freeway to the south, is available via the two north-south thoroughfares skirting the tract.

To provide proper circulation within the district, railroad spurs and service streets are so placed as to constitute a minimum of conflict.

Industrial development study prepared by author for the City of Corona, Calif.

City Industrialization

By W. G. ROESELER
Planning Consultant

Provisions for rail egress to the southwest are made should such arrangements become more desirable than the dead-end spurs indicated on our sketch. The center lines of all needed rights-of-way are established by survey and setbacks are determined on this basis.

All loading and parking facilities must be located in the interior block areas; however, community facilities are permissive. The service street rights-of-way are 80 feet; skirting thoroughfares 100 feet and 150 feet, respectively. The building setback on interior or service streets is 20 feet, while a setback of 40 feet will be imposed in the main access road, Sherman Avenue.

To further facilitate interior traffic circulation, the developer must make provisions for the accommodation and storage of all plant vehicles off-street, including trucks. Loading facilities will, of course, depend upon the type of manufacturing, but will have to be sufficient to accommodate peak loads. Employee parking is to be furnished on the basis of one space for each three employees and a certain amount of customer space must also be available. For the purpose of dust abatement and more efficient operation, all operating areas, as well as loading and parking spaces must be surfaced with suitable asphaltic material.

Plant Design and Density

The precise plan endeavors to govern street and service design, and controls, also, the basic features of plant development, density, and location.

The Corona Plan requires a minimum lot area per individual development of 25,000 square feet, of which 30% may be covered with structures. A minimum distance requirement of 80 feet from building to building has been established and structures are limited to an average of 35 feet, or two stories in height. Parkways between curb and sidewalk, as well as other nonutility areas, must be landscaped, and street-pavement width from curb to curb will not exceed 60 feet in most instances.

These standards, which were developed on the basis of modern industrial practice, constitute the framework within which the industrial entrepreneur is invited to operate in Corona. The various rules and regulations will protect the manufacturer's investment and, at the same time will prevent the influx of undesirable nuisance establishments not only in residential areas but in the industrial districts as well.

Developoment and Adoption

The Corona Plan was developed in close cooperation with the owners of the tract property. It was adopted with the provision that the owners may review it at the end of 5 years to make such adjustments as will be advisable at that time. Speaking from the standpoint of planning law and administration, the property owners concerned have given their consent to the adoption and administration of a detailed development plan for their lands.

Applications for development will be made to the City Planning Commission, which will rule on the individual development plans. Upon approval, the developer will enter into a contract with the property owner which, in most instances, will probably be a long-term lease. Or, the property owner, upon Planning Commission approval may build industrial facilities himself and make these structures available to a manufacturer. The Corona Real Estate Board and the Chamber of Commerce will undertake the promotional activities of the program.

Housing a Prerequisite

In delineating this program it was realized from the start that the provision of adequate housing would be a prerequisite for a successful industrialization. Not only will it be necessary to provide housing for the inmigrating industrial employee but also for the many persons engaged in secondary services supported by the basic industry. Statistics indicate that 100 persons engaged in a primary industry may support as many as 600 to 800 people engaged in the retail trades, professional work or as dependents.

It is for this reason that the reservation of industrial land alone is not inducive to industrialization. It is essential to assure the incoming manufacturer that proper measures have been taken to provide his employees with the conveniences of modern living. The tract adjoining the industrial district, for instance, is reserved for a multiple-family neighborhood with shopping and elementary school facilities. Details for this tract are being developed with particular emphasis on the provision of permanent open spaces. The general land-use ideas is to eventually develop the multiple-family areas in an easterly direction toward the core of the city the one-family subdivisions to the south, and the industry, if necessary, westwardly.

Preliminary comments from industrial developers have been encouraging, and it is expected that the Corona Plan will serve as a workable basis for the sound expansion of a growing and prosperous community.

Training Citizens To Promote Their Cities

THE CHAMBERS OF COMMERCE of Louisville and Savannah are currently holding courses to teach people whose business brings them into contact with the traveling public how to "sell" their city.

As part of the "Know Your City" program in Louisville, 65 taxicab drivers were informed about their city's industrial advantages, its weather conditions, population, race distribution, plans for the future, and tourist attractions. Similar meetings will be directed to hotel employees, restaurant and retail personnel, members of the police force, etc.

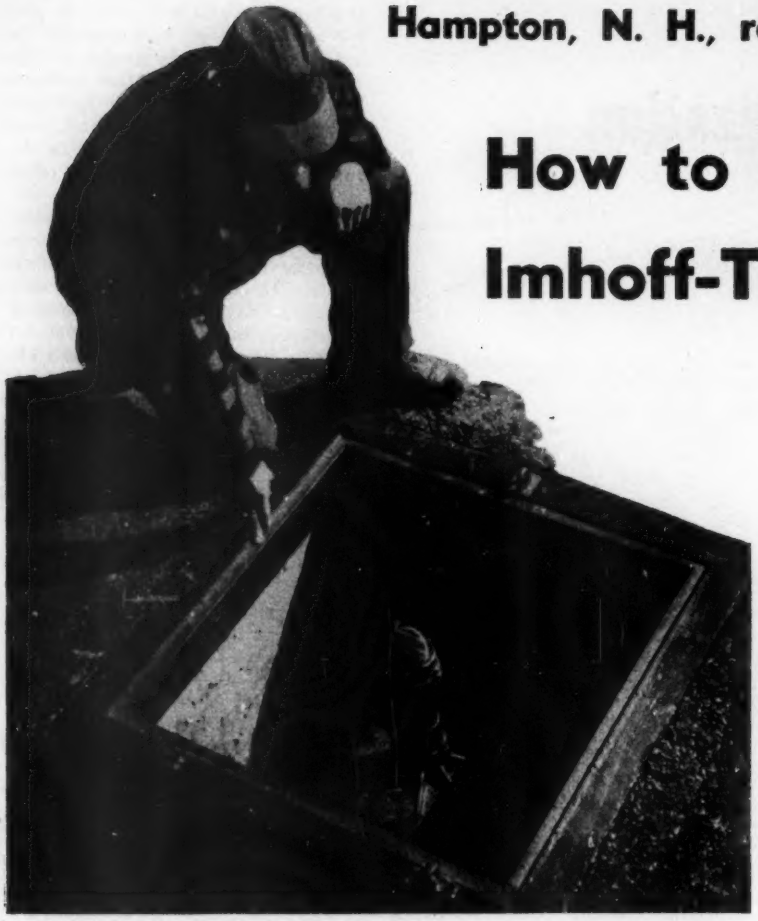
The Tourist Business Promotion short course of the Savannah Chamber has drawn an average of more than 50 persons to each of the morning instruction periods, where qualified speakers discuss more effective promotion of the Savannah area as a travel destination.

In addition to the talks, the courses feature movies, or slides and tours to point up the local attractions.

Hampton, N. H., reports on

How to Rebuild an Imhoff-Tank Plant

New techniques of sewage treatment are adapted to an old plant to achieve increased flow



Hampton's sewage load will easily be handled with this new master meter on the job.

IN CASE anyone harbors doubt that it can be done, the Imhoff tank at Hampton, N. H., proved that an old plant can certainly learn new tricks, particularly when the tricks are good, and the method of doing them is logical.

The trick this Imhoff tank learned, was to treat sewage from a growing population, complicated by an influx of seasonal visitors. Hampton, an oceanside city of 1,614 in southern New Hampshire, attracts many summer vacationers. To keep the beaches popular, the trick had to be performed with care to prevent sewage pollution of the bathing areas.

Installed in the Early 1930's

The Imhoff tank, with fixed-nozzle trickling filters, final settling tanks, and postchlorination facilities had been installed in the early 1930's. It performed creditably so long as the peak summer population never surpassed 10,000 people, or the flow 1,000,000 gallons daily.

The Imhoff tank, of the conventional double-compartment type, had an upper, settling portion with a capacity of 63,000 gallons. This unit provided a detention period of 1½ hours at peak flow. The lower, digestion portion could accommodate a volume of 10,000 cubic feet, or 1 cubic foot per person daily.

The trickling filter covers 0.42 of an acre and is 8 feet thick, an area which can serve 2,400,000 gallons per acre per day and is well within the design range of these beds. Calculated in other terms, the area provides a filter volume of sewage from

The Imhoff tank (foreground) is assisted by a new settling basin, attached to the rear of the tank, to provide longer detention. Note sludge-sampling pump (center).

The large, rugged trickling filters required no alterations to treat the added flow.

3,000 persons per acre-foot, which is also well below the 6,000-person limit often used for designs of this type. The trickling filter is required to function at half capacity in wintertime.

The final settling tank was designed for two compartments without a continuous method of removing sludge. A centrifugal pump periodically transferred this sludge to the digestion compartment of the Imhoff tank. The final tank also acted as a chlorine contact chamber.

Increased Load

This treatment facility performed satisfactorily until the load contributed to the plant began to exceed the 1,000,000-gallon design limit. Not only had the Hampton area grown, but, in addition, the Village of Hampton Beach was bringing its sewage to the plant through a 1¼-mile pipeline.

Under these conditions, a design flow of 1,800,000 gallons seemed desirable, a capacity which called for corresponding enlargements in the Imhoff tank and filter beds. In the 20-year interval since the tank had been constructed, sanitary engineers had learned how to build more effective plants. Therefore, the trick was to adapt the old plant to its new load by applying these new techniques.

Primary Settling

Most sanitary engineers will agree that the backbone of sewage treatment is primary settling. Consequently, the first step of the enlargement was to bring the settling capacity to the 1½-hour detention period that had worked so well in the past.

A plain sedimentation basin, built onto the end of the Imhoff tank, provided this capacity. The basin measures 36 feet in length, 18 feet in width, and has a 10-foot water depth. It is equipped with Link-Belt longitudinal and cross-collecting sludge-removal mechanisms as well as with skimmers to remove the scum.

The new rectangular settling basin utilizes an unusual method of sludge removal. The scrapers deliver the sludge to a sump where a draw-off pipe removes it hydraulically. The draw-off pipe discharges through a channel whose flow is controlled by an adjustable V-notched weir that establishes a differential in head between the settling tank and the channel. The sludge, withdrawn by this difference in head, flows to the sludge compartment of the Imhoff tank.

While, in theory, this design was logical, practical application demanded that the draw-off system be reinforced with pumps. Sand that had worked into the laterals was causing trouble. So a Fairbanks-Morse bladeless impeller trash pump was installed to supplement the hydraulic draw-off of the sludge from the new primary tank.

Trickling Filters

Attention was then given to the trickling filters. Experience has proved these slow-rate filters to be very rugged. Moreover, the added flow has raised the operating figures to 4,300,000 gallons per acre per day, which remains within the expected operating range. Therefore, the designers were confident that the old trickling-filter bed could do its job of purification without the need for alterations.

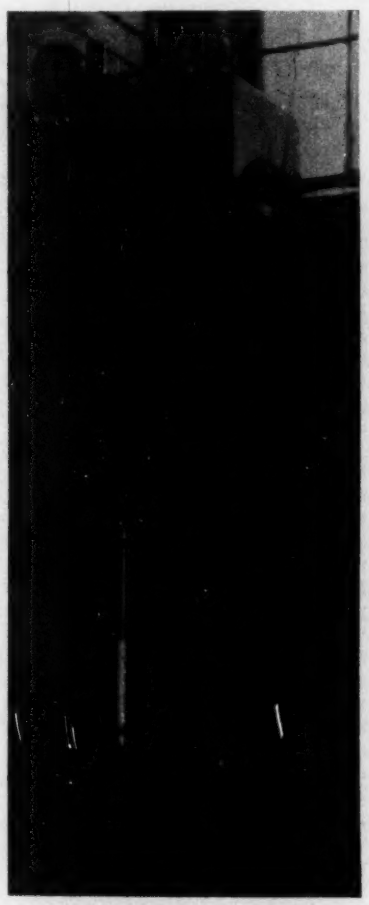
Piping, however, had to be rearranged to accommodate this increased flow effectively. In this process, the plant was supplied with a Sparling master meter to measure the flow more accurately.

Final Settling

Also, the final tank was increased by the addition of another unit which creates, in effect, a triple-compartment tank system which provides about 20 minutes of detention. However, the addition uses Link-Belt equipment that allows continuous sludge-removal. The old chlorinator remained adequate for postchlorination. The new final settling tank employs a sludge-removal arrangement similar to one used in the primary tank. In this case, the sludge flows to the pumphouse sump that receives the raw-sewage flow from the village. The combined mixture then proceeds to the primary tank.

Inlet Arrangement

The inlet arrangement from the old final tank to the new unit also employs an adjustable weir that permits flow through a cross channel to the new tank. The effluent is then directed back into the old tank for final discharge into the receiving waters by duplicate Nash self-priming, centrifugal pumps, each with a capacity of 250 gallons per minute. A Chicago Pump comminutor has been supplied to the plant to reduce the large solids to a more easily



Although the Wallace & Tiernan chlorinator is an old timer, long years of service have not impaired its effectiveness.

handled size. Digestion of sludge in the Imhoff tank appeared adequate. The plant has no troublesome wastes and has plenty of lagoon area close by.

One unusually interesting point is the damage to the concrete and metal apparently caused by salt-water infiltration to the sewage. To prevent deterioration of the concrete, Rosendale natural cement was used in all the construction. The metal was protected by the application of two heavy coats of Bitumastic No. 50, manufactured by Koppers Company, Inc.

Thus the old Imhoff-tank plant is now able to perform the trick of treating added flow and protecting the village's important recreational beaches. The plant has been operated continuously by Leavitt Magrath, superintendent of sewers for Hampton. The plant revisions were designed by Haley and Ward, consulting engineers of Boston, Mass.

Excessive sand in the sludge from this beach resort is no problem for the plant's Fairbanks-Morse bladeless impeller pump.

Sewage-Treatment Film Available Free of Charge

To the Editor of THE AMERICAN CITY:

In your issue of May 1954 (page 114) we found a listing of films on sewage treatment. We would appreciate it if you could list a film which is available from the Department of Public Works of the City of New York, dealing with sewage treatment and entitled, "The Waters Around Us." It is a 16-mm, black and white sound movie and runs 26 minutes. The film was produced by the Film Unit of New York City's Municipal Broadcasting System and is available free of charge by writing to Ernest Neufeld, Executive Assistant, Department of Public Works, Room 1800, Municipal Bldg., New York 7, New York.

FREDERICK H. ZURMUHLEN
Commissioner of Public Works
The City of New York

Make Water Metering Universal

The luxury of an unmetered water service is an unjustified expense as shown by water-works operating records across the country

TODAY, one rarely hears anyone challenge the wisdom of using water meters as a part of the water-distribution system. Five years ago, THE AMERICAN CITY made a survey of 72 cities ranging from 7,000 to 2,400,000 in population and discovered that 97.7% of the water services in these cities were equipped with meters.

Missing from this survey were New York, Chicago, Philadelphia, Buffalo, and certain other cities which were still following the policy of flat-rate distribution. Therefore, the percentage figure is undoubtedly high. Yet, since that time, Philadelphia has dropped its policy of unmetered water distribution. In addition, all these great cities have experienced substantial growth in their suburban areas, where the use of meters is well established.

The over-all national figure may not reach 97.7%, but it should be high enough to lie somewhere between 90% and 95%. All these figures demonstrate that the overwhelming opinion of competent water-works authorities is that the use of meters is economical and constructive.

Water-works officials have advocated metering for a long time. Apparently, the first water commissioner on record who employed meters was a man who served under the Roman emperors Nerva and Trajan from 97 A.D. to 100 A.D. At that time, Commissioner Frontius wrote an account of the Rome water works stating that each user of water was supplied through a little instrument which served as a meter.

Meters began to win solid favor among water-works men in modern times during the latter part of the 19th century. G. Bechmann, for many years chief of the water works of Paris, France, strongly endorsed metering as early as 1888. John Freeman, one of this country's great civil engineers, urged meters as a method of minimizing the waste of water in New York City as long ago as 1900. Unfortunately, his recommendations have yet to be heeded.

The late Allen Hazen, another of the nation's great civil engineers, pointed out more than 35 years ago, that the use of meters on water services in any city was the only way to eliminate gross inequalities and discrimination in distributing the cost of water supply. He also pointed out that it was the only practical method yet found for restricting excessive waste.[1] The record rolled up by the water-works industry has universally supported Mr. Hazen.

In 1940, the little North Dakota city of Wahpeton found itself distributing 700,000 gallons of water per day on a flat-rate basis. When the city installed meters, the volume of water used dropped to 250,000 gallons per day, and the average water user's bill was less than it had been under the flat-rate system. Needless to say, the cost of distributing roughly one-third the amount of water to do the same work was substantially less.

Elizabeth City, N. C., also suddenly found that flat rates were an expensive luxury. In 1931, the city distributed an average of 1,800,000 gallons of water each day on a flat-rate basis. Top capacity of the plant was only 2,000,000 gallons per day. The installation of meters on the services reduced the demand to only 300,000 gallons daily.

Other cities have had similar experiences. Los Angeles reduced the average demand for water used for domestic, commercial, and industrial

(*Continued on page* 122)

A neighborhood unit in Kitimat, B. C. Note the street system and plan of interior parks, with separation of pedestrian and auto traffic. Clarence S. Stein served as over-all planning coordinator for this project of the Aluminum Company of Canada. Mayer & Whittlesey of New York, a firm with a dual practice in both planning and architecture, prepared the master plan.

Specialized Consultants Save Municipal Headaches

By J. GORDON CARR, A.I.A.*

WHEN a harassed city administrator is looking for a way to lop off expenses, the hatchet will very often fall on architects, city planners, and other specialized consultants and engineers whose function it is to complete pre-construction planning.

Popular though it may be, that is a short-sighted saving, guaranteed to cost the municipality more in the long run. Delegation of details to specialized consultants, on the other hand, repays their fees many times over by savings in wastage and time and by enhanced results from adequate planning.

Most of us are aware of the tremendous need for specialized planning in redevelopment projects, but it might be useful to point out the savings in money and trouble realized by their efforts. Surveys of the area to be redeveloped and of the existing facilities are of practical benefit in avoiding wastage by arranging to utilize features in the over-all planning for growth and development. They also provide a bedrock of solid fact upon which all other planning can be based.

Carefully coordinated over-all planning has the additional advantage of enabling municipalities to get the most economical work schedule with the least disruption of important thoroughfares, basic utilities, and ordinary community activities. Naturally, that is of paramount importance to any community—particularly if there are commercial establishments within its borders for which a work stoppage, or delay, is an expense to be avoided at all costs.

Budgets and goals for subsequent periods of work can be determined from the details of the over-all plan, with a degree of accuracy impossible with less comprehensive planning. As a guide to financing arrangements, the over-all plan is immensely valuable—a "must" to the community that wants to know exactly how much its commitment will be, before actual construction is started.

Obviously, if plans and specifications are complete, bids can be expected to be all-inclusive. Since the period before contracts are signed is the last opportunity for bargaining, contractors will give the lowest possible bids because they are still competing for the job.

If plans are not complete when bids are made, contractors will cover themselves with "cushioning," in order to protect themselves against any unforeseen expenses. And extras not covered in the original specifications will cost "an arm and a leg," because no bargaining is possible.

Determining Project Feasibility

These remarks indicate the situation if construction is actually forthcoming. Let's consider an instance in which the architect is called in to help determine the *feasibility* of a project and the best placement for the advantage of the community.

Economic surveys to determine size, scope and budget for a munici-

* Mr. Carr is head of the New York architectural firm that bears his name, and has designed and supervised projects that include factories, airports, and offices. At present, he is working on the Eastern Junior High School in Greenwich, Conn. In addition to training received at the Massachusetts Institute of Technology, Mr. Carr has a degree from Harvard's Graduate School of Business Administration.

Construction proceeds rapidly on main plant of the Aluminum Company of Canada, in Kitimat.

pal project frequently produce startling results. One such survey which my office took for the City of Waterbury, Conn., will serve, I think, to illustrate the pertinent material developed by these preconstruction activities.

We were called in at Waterbury to advise on the feasibility of an airport, and to select the best of several sites, suggest cumulative planing, outline stages of construction, and estimate costs for each.

Good Location Found

After months spent surveying the community and its environs, we found there was a good location, close to a highway network, on ground allowing for reasonable construction costs, with ample land for development. Moreover, the survey included all the construction information requisite to starting the project.

But, our final recommendation as consulting architect was—no airport! The economic survey indicated to us that Waterbury could not support such a municipal airport on the basis of income expected from it. We recommended, instead, that the city encourage private flying at the nearby airport sites then in use, to stimulate industry in the area.

Like many another conscientious architect, we had studied ourselves out of a job and saved the city from an uneconomical undertaking, before costly construction had started. But then, that possibility generally exists when studies are made for municipal progress projects, and it is certainly better to assemble complete economic data before undertaking a project that may prove detrimental to the community.

City planning offers unique examples of the importance of preconstruction work by architects, whose main chore in the pre-planning stage is to resolve large problems into smaller ones more susceptible to solution. Hence, a long-range over-all plan must immediately be evolved, with which more immediate planning for elements of the whole will conform. This breakdown into many small jobs benefits the city administrator in preparing a capital budget.

Another example of the advantages of engaging architectural and planning services is the Kitimat project of the firm of Mayer & Whittlesey in New York City. This firm's dual practice in planning and architecture underscores the close relation of each to the other. The firm is represented both in the American Institute of Architects and in the American Institute of Planners.

Plan Precedes Municipal Incorporation

Mayer & Whittlesey's Master Plan for Kitimat, B. C., in Canada, actually preceded incorporation of the new municipality, and was instituted by the Aluminum Company of Canada. Clarence S. Stein, well-known architect-planner, served as over-all planning coordinator for the company. Constant consultation with the public and private individuals concerned resulted in general understanding when the by-laws were drawn and the first capital budget approved.

The architects also assisted in drafting zoning by-laws to provide a legal counterpart for the physical planning. Hence, before construction began, Kitimat had a head start on many problems. Development work was scheduled to follow promptly upon the completion of the planning. Each planning map had its counterpart in a utility system overlay, providing an immediate guide for engineering work. School and health systems were plotted for each stage of development, serving as a guide for school and health boards concerned with programming development.

The Kitimat plan is more than one for roads and utilities. It is concerned with the quantity, location, and arrangement of land uses for residential and commercial areas, for local service industries (in separate center), for heavy industries, harbor and rail facilities, parks, school sites, etc.

For the first neighborhood scheduled, there was enough detail in the plan to enable architects and engineers to proceed directly with contract drawings in whatever work they were engaged. Thus the detail shown for the first neighborhood went somewhat beyond master planning and into development work.

It showed prototype designs for many elements within the Master Plan, including special attention to landscaping as protection from wind and snow, typical house groupings within the site plan, and even diagrams for house types. These latter bore a close relation to the site planning, which emphasized internal parks, and, of course, to the characteristics of families expected to come to Kitimat.

The question confronting the city administrator should not be "When must I engage an architect or planner?" but rather, "How early can I?" Certainly this is evident when the architect's fee for pre-planned consultation, etc., is considered in comparison with the savings his knowledge and inventiveness make possible.

Aside from savings, the architect or planner contributes mightily to the city administrator's peace of mind, providing detailed justification for budgetary considerations and time-coordinated scheduling likely to reduce the aspirin company's income from the executives of the municipalities.

Tiffin, Ohio Buys

Better Refuse Sanitation

City invests in up-to-date equipment to get lower sanitation costs and more sanitary living conditions

By FRANCIS C. STAIB
Street Superintendent
Tiffin, Ohio

UNTIL JANUARY 1953, all of Tiffin's garbage was collected by a private hauler, operating under contract with the Department of Service and Safety. Private scavengers collected the balance of the refuse and dumped it in an open pit at the city's outskirts.

The garbage collector's contract required that he supply one truck and a crew of three men to serve our entire city of 19,000 people. For this service, he received $8,000 per year, collecting only organic garbage suitable for hog feeding.

Complaints Plus a Cost Boost

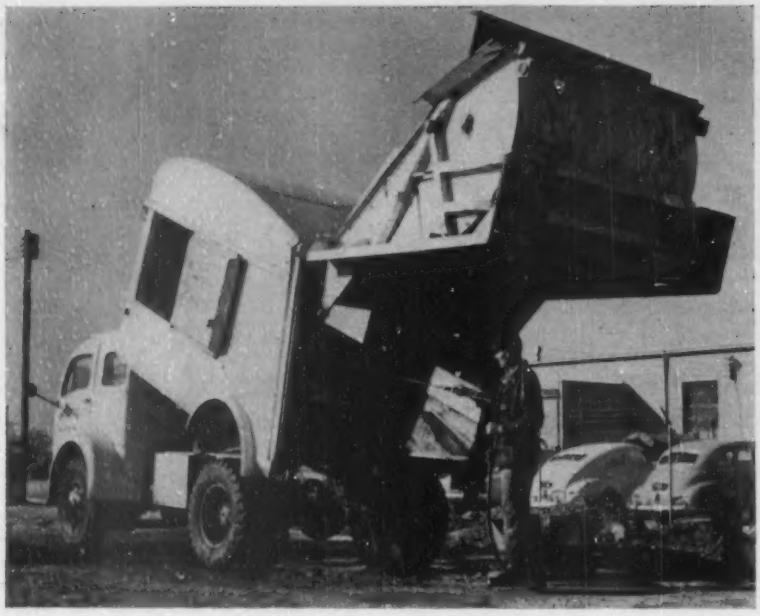
This arrangement, while apparently economical, was far from satisfactory. The contractor's service was sporadic and undependable. Littered streets and alleys were common, since the open trucks were at the mercy of winds; paper and debris were strewn across pavements and lawns. The open dump that received the balance of the refuse was also the source of constant complaints from nearby residents. Odors permeated the homes; vermin bred rapidly in the pit; and the unsightliness of the site was scarcely a credit to Tiffin.

Paradoxically, it was our contractor who provided the impetus for our improved municipal sanitation program by asking a 150% price increase. During the summer of 1952, when bids were solicited for refuse collection, the contractor who had been servicing the city, and who was the lowest bidder on this occasion, asked for a fee of $20,000, notwithstanding the fact that he would provide no increase in equipment or manpower. His reason for the price rise was the state-wide ban on feeding uncooked garbage to hogs, which prevented him from selling the garbage and cut the profit he would have made. The prohibition resulted from outbreaks of vesicular exanthema in the hogs which was traceable to this practice. Obviously, we had to develop some method of improved service to justify this sort of expense.

Survey

The first step that we took was to make a complete survey of local garbage- and refuse-collection problems. This idea was suggested to the City Council shortly after the bids were opened, together with the recommendation that the public service director and his staff be commissioned to investigate fully the feasibility of municipal operation. The Council

Galvanized baskets permit collections from several homes and save labor- and time-consuming trips back to the refuse truck.



The sanitation program is carried to the equipment itself. Daily, drivers wash the trucks with soap and water and periodically steam-clean interiors to remove odors.

promptly authorized such a study, asking for cost estimates and a set of recommended municipal ordinances so that the new service could be established by the end of the year, if this proved wise.

We then proceeded to list every home, industry, and business needing refuse-collection service. Much of this information came from the local water company files. However, in certain areas, it was necessary to canvass the district. The study showed that we would need to collect about 68 tons of refuse per week making a total of 3,700 stops.

Equipment Needed

Our next consideration was the type and number of collection vehicles required to handle the job. Certainly, in view of the many complaints about littered streets and alleys, fully enclosed truck bodies were essential. Further analysis showed that by dividing the city into two collection routes, two 16-yard, compactor-type trucks, operating five and one-half days a week with a crew of a driver and two loaders, would be sufficient to assure weekly collection service for every home.

After making a comprehensive study of compactor-type truck bodies that are available to municipalities, we selected the Gar Wood 16-yard unit as the one we believed would best satisfy our particular needs. The features that attracted us were the low, convenient point of loading, the ample size of the loading hoppers, and the powerful, built-in hydraulic compaction that can handle even rolled-up rugs and discarded furniture.

We also gave considerable thought to the truck chassis. Since about 75% of our collections are made in alleys, we required as short a wheelbase as we could possibly get. Cab-seating capacity was another consideration, for we required enough room to accommodate three men comfortably. We selected the short wheelbase White "tilt cab" which offered other advantages including easy servicing of the engine. We could have purchased a cheaper unit, but it would not have given as efficient service.

Finally, we had to find a more satisfactory method of refuse disposal than our open dump. The criticism of the unsanitary pit and the recent state legislation outlawing the use of uncooked garbage as hog feed led us to the selection of the sanitary fill as an ideal solution. Many natural gullies located outside the city limits lent themselves to reclamation by fill-and-cover, and so these sites were chosen. For our fill work, we acquired an International TD-14A crawler tractor equipped with a 2-yard Drott Builclam.

The entire program represents a capital investment of $32,000. Under our proposed financing arrangement, the initial capital investment for equipment called for an allotment from the general fund. Operating costs, in contrast, were to be paid by a nominal service charge which would be large enough to permit 10% of the capitalized cost to be returned to the city's fund each year. In this way, the cost of the equipment would be amortized over a 10-year period and no bond issue would be required.

In July 1952, the Council approved the proposed program and confirmed its legality by passing a Garbage and Refuse Collection Ordinance. The Ordinance required that garbage from private homes be drained and wrapped in newspapers, and stored in covered containers not larger than 27-gallons capacity. Garbage from food-handling establishments need not be wrapped but must be drained and stored in covered containers.

Each residence is allowed two 27-gallon containers, neither weighing more than 75 pounds when full. Rubbish too large to be placed in containers must be tied in bundles not exceeding 36 inches by 18 inches, and must not weigh more than 40 pounds. Charges for this service run as follows:

Establishment	*Per Quarter*
Residential	
all refuse	$ 3.00
garbage only	1.50
rubbish only	1.50
Retail Food	
large	60.00
medium	27.00
small	12.00
Restaurants	
large	36.00
medium	24.00
small	9.00
Other businesses	9.00

We varied the rates for residential collection out of consideration for those homes with individual incinerators or garbage grinders. The ordinance further provides that in event of a surplus in the garbage- and refuse-collection fund after all costs and expenses have been paid, the rates for the next year will be reduced accordingly.

Post cards were printed and mailed to all householders on our list of probable customers, as well as to business establishments, informing them of the various types of services available and the rates for each. All were instructed to indicate the type of service needed so that the Service Director could determine his collection runs.

A few "dry runs" with the new equipment showed that the Sandusky River was a natural dividing line

for the collection routes. One Load-Packer, making collections north of the river and the other on the south side, could provide weekly service to all residences with ample spare time to provide increased frequency for commercial establishments. A total of 4,100 stops per week is currently effective, 400 more than the original survey indicated would be needed.

Practice Runs

The practice runs showed that approximately 75% of all collections would be made from the alleys and the remainder would be made from the street. Accordingly, we purchased a number of 1½-bushel galvanized baskets to "tub" refuse from two or more homes.

On the morning of January 2, 1953, the program went into effect. Citizens have expressed pride in their big, immaculate white refuse trucks that appear on a regular schedule. Those of our people who expressed apprehension about the sanitary fill were shown how refuse was compacted and covered with earth so that odors could not escape and vermin could not breed. Today, Tiffin's fill is a model of efficiency and we frequently play host to sanitation officials from communities who wish to inspect our operations.

The drivers wash the refuse trucks with soap and water each night. They also steam-clean the interiors regularly with apparatus made by Quick Charge, an Oklahoma City firm. The drivers receive extra compensation for this work, but they are expected to handle routine maintenance such as greasing and oiling. We base this maintenance work on hours of truck operation rather than actual miles traveled. The superintendent of the sanitary fill assumes responsibility for routine maintenance of his tractor.

The eight full-time employees of the department work on a task system. They receive pay for an eight-hour day beginning at 7:00 a.m. and have a definite section of their weekly route to cover. When they complete the assigned collections, their day's work is done whether the eight hours have elapsed or not. This method encourages promptness.

All employees work the standard five-and-one-half-day week and are furnished wet-weather clothing so that schedules can always be maintained. On holidays, the crews collect half of the following day's stops on the eve of the holiday and the remainder, the day following the holiday. Overtime pay is authorized for this additional labor.

The number of stops on each route varies, depending on the number of carry-outs. We have one route with 420 stops, while others require as few as 300. At this time, the average is about 370 pickups. If our crews miss a stop one day, they must go back the following day.

Private scavenger licenses are still issued by the Department of Service and Safety, but wastes can be dumped at the fill only between the hours of 7:30 a.m. and 3:00 p.m. to allow the fill operator time to compact and cover on the same day.

With the introduction of municipally-owned and -operated collection and disposal service, we have fulfilled a long-standing need of our city. Costs are moderate and service is so efficient that complaints are virtually past history. Our 10-year financing program has placed no strain on the city's financial stability, and the economy of operation gives every indication that our city will continue to enjoy the lowest possible service rates.

Films for the Municipal Engineer

FILMS, not listed in the May issue of THE AMERICAN CITY which may be of interest to the municipal engineer, include:

WATER

Highlights of 1953

1953. 16mm. Silent. 20 min.

A home film of activities by the Atlanta (Ga.) water works, produced annually.

Available on loan from Department of Water Works, Atlanta 3, Ga.

The Drilled Well—Sanitary Aspects

1954. 87 frames. Color. 9 min.

For sanitarians and sanitary engineers. Filmstrip shows: defects of drilled wells of improper construction; joint responsibility of owner, driller and sanitarian for proper site location and well construction; attributes of good site; structure and functioning of drilling rig; installation and purpose of steel casing; prevention of outside seepage by forcing a concrete grout upward into the space between soil and outer casing surface.

Produced by Audio Visual Production Services of the Communicable Disease Center, U. S. Public Health Service, P. O. Box 185, Chamblee, Ga., and available on free loan for training of personnel; for purchase from United World Films, 1445 Park Ave, New York 29, N. Y.

Small Water-Treatment Plants: Part I. Filtration Plants

1953. 59 frames. Color. 7½ min.

Aid to teaching operating principles of small water-treatment plants.

Available from U. S. P. H. S., as listed above.

SEWERAGE

New Sewers for Old

1954. 16mm. Color. Sound. 15 min.

Shows complete installation of a large diameter metal sewer beneath the street, railroad tracks, etc., in moderate-sized Midwestern city.

Available on loan from Armco Drainage and Metal Products, Middletown, Ohio.

STREET CONSTRUCTION

The Builders

1954. Sound. Color. 31 min.

Nontechnical and directed to general audiences; made up of location sequences filmed in 13 states; portrays advanced building developments and role of welded wire fabric in reinforcement of construction of highways, large buildings, residences, bridges, tunnels, canals, and concrete pipe.

Produced for Wire Reinforcement Institute and available (transportation charges only) from Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York 20, N. Y.

STREET SWEEPING AND SANITATION

Sparkling Clean Streets

1952. 16mm. Color. Sound. 23 min.

Modern street-sanitation practices, Wayne Model 450 Sweeper, and Wayne Manufacturing Company.

Available on loan from Wayne Manufacturing Company, 1201 E. Lexington St., Pomona, Calif.

REFUSE COLLECTION

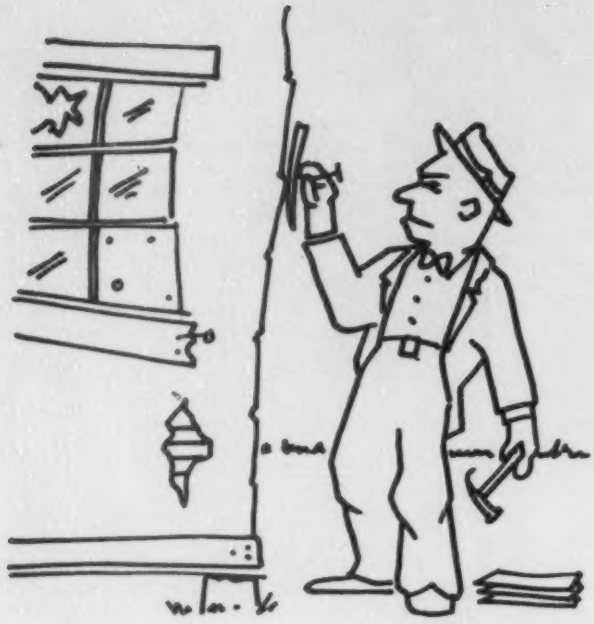
The Modern Way to a Clean Community

1953. 16mm. Color. Sound. 20 min.

The importance of modern methods of refuse collection with fully enclosed bodies, illustrated with a Load-Packer collection truck.

Available on loan without charge from Customer Service Department, Gar Wood Industries, Inc., Wayne, Mich.

THE AMERICAN CITY will be glad to publish information about any other recent films, not included in this or earlier listings, which may be of interest to municipal engineers. Address correspondence to William S. Foster, Engineering Editor, THE AMERICAN CITY, 470 Fourth Avenue, New York 16, N. Y.



Pasadena's Rehabilitation Program

By MARVIN H. SOALT
Planning and Housing Division
Columbia University

"HOW are we going to prevent slums?" This is a major question confronting our cities today. Throughout the country, cities and towns are seeking solutions for eradicating dormant breeding grounds of disease and crime. Thus far, among the many programs evolved to settle the problem, Pasadena, Calif., has come forth with one of the most successful. It may well become a guide for action for other communities in the near future.

"Operations Junkyard," Pasadena's rehabilitation program, began with a housing survey conducted by the Pasadena Planning Commission in 1950. The study covered 197 blocks of the poorest housing, or 10% of the city's area. The surveyed areas revealed:

1. Conditions of substandard housing throughout the entire area.
2. Though a sizeable proportion of substandard housing existed in some places, no entire district had reached slum conditions.
3. Individual houses in good condition existed throughout the area.
4. Most advanced conditions of deterioration were apparent in areas zoned for commercial and manufacturing uses wherein no density controls existed.
5. By concentrated efforts aimed at the correction of isolated cases of substandard housing, many neighborhoods could be cleaned up.
6. If the instances of neglect or unsanitary conditions went unchecked, they would spread into surrounding neighborhoods which were relatively free of blighting influences.

After an analysis of these prevalent housing conditions, the Pasadena Planning Commission decided the situation could be corrected locally through the combined efforts of the city government and citizens of the community. As a result, a coordinating and clearing committee, representing all departments of the city government, was organized for the purpose of initiating an active rehabilitation program.

How the Program Works

The program then drawn up is presently in operation. It works as follows: Field inspections are made to seek out those properties below the minimum standards. For those properties needing correction, letters individually prepared are sent out to the owners telling them of the fault and violations found on their property and the solution required to remedy the situation. The letters are signed by the chiefs of the building, health, and fire departments and their assistants, and mimeographed copies of pertinent excerpts from the building, sanitation, and fire laws are enclosed.

Furthermore, when a building is found to be below minimum standards, a placard 11 inches by 7 inches painted in large Red letters proclaiming the building is unsafe is posted on the property. Copies of the violation letter are forwarded to any possible tenants and to the health, building, fire, and planning departments. Also, a copy is kept in a special follow-up file for use by the city prosecutor.

At the time a notice is sent out, the address is noted on this special follow-up file for scheduling future inspections to determine whether compliance has been met. The building, fire, and health departments each send a man out three days a week to make follow-up inspections.

Where compliance is not met within the specified time, a second notice is sent to the owners. After this, if the proprietor still refuses to rehabilitate his property, the case is referred to the city prosecutor for investigation.

Cases of hardship and financial distress, which make compliance difficult or impossible, are referred to the Welfare Department. If necessary, the assistance of the pastor of the owner's church is secured to relieve the distress and secure compliance with the ordinance. Also, where property owners are not financially able to complete clean-up and demo-

lition of buildings, the city takes over the task.

As of February 28, 1954, 6,290 properties had been inspected. There had also been 6,101 reinspections, so that the total number of inspections made amounted to 12,391. A total of 4,197 notices requiring correction of deficiencies and violations were prepared and mailed.

During the 6,101 reinspections, it was found that a total of 1,602 buildings had been demolished or substantially rebuilt. It was also determined that 2,646 of those properties to which notices were sent have fully complied with the provisions of the notices. Each of the owners of these 2,646 properties has received a letter of thanks from the Mayor, or a postcard.

The expense of the entire program has been relatively small. The first year the cost of the clean-up was $2,939.67, and the average cost per structure demolished has been $2.97 over and above all department functions. Money has been saved by utilizing employees of the building, fire, and health departments.

Three Basic Principles

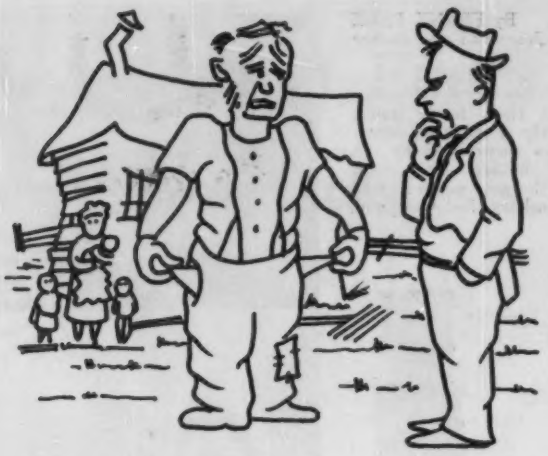
Why is this program so effective? The reason lies in the sound approach used by the coordinating and clearing committee. There were three basic principles underlying the plan that made the program economical, palatable to the public, and effective:

1. Public pride was the force that was awakened, by participation of every segment of the community—public and government—in the program.

2. The best implementation of this was the maintenance of good public relations between the city government and the public.

3. The city government effectuated the program by using existing personnel, and enforcing existing ordinances. Thus, no federal or state aid was called for. This new integration of forces already at hand, at the local level, solved the problem of the expense of the program.

Pasadena's program is sound and effective. Already, the City of Los Angeles, Calif., has adopted the same principles of operation to combat encroaching blight. It might be well for other cities and towns to make a study of the program and consider incorporating the principles underlying the Pasadena plan into their own present housing redevelopment plans.



Inspection Findings

Buildings of all types ordered demolished or substantially rebuilt	2,429
Properties where buildings required to be repaired only	1,802
Properties with an excess of accumulated rubbish	1,786
Properties with an excess of dry vegetation—which created fire hazards in all cases	691
Possible existing rat harborages ordered corrected	2,666
Junk yards or properties with conditions serious enough to be classified as junk yards, to be discontinued	150
Illegally existing trailers ordered vacated or removed from the properties	32
Defective incinerators to be repaired or replaced	1,237
Illegal burning to be discontinued	323
Illegally kept fowls or rabbits, most of which were too close to neighboring dwellings	232
Buildings with illegal kitchens to be corrected, or their use as kitchens to be discontinued	24
The dumping of sewage on the ground—in most cases outside laundries with fixtures not connected to sewer systems	68
Properties with defective or illegal electrical wiring	360
Properties with defective or illegal plumbing installations	180
Illegal use of buildings or properties—in most cases conversion of garages and sheds into sub-standard living quarters	236
Improper maintenance of parking strips	175

Enter All-America Cities Contest Now

APPLICATION BLANKS are now available for enrolling in the 1954 All-America Cities Contest, sponsored by the National Municipal League and *Look* Magazine. Any citizen, public official, or civic group may nominate his city. Simply write a letter to the National Municipal League, 542 Fifth Ave., New York 36, N. Y., nominating the city and giving the reasons for such nomination. If the city is eligible, an official entry blank will be sent which must be *returned by October 1*—preferably earlier. There is no entry fee.

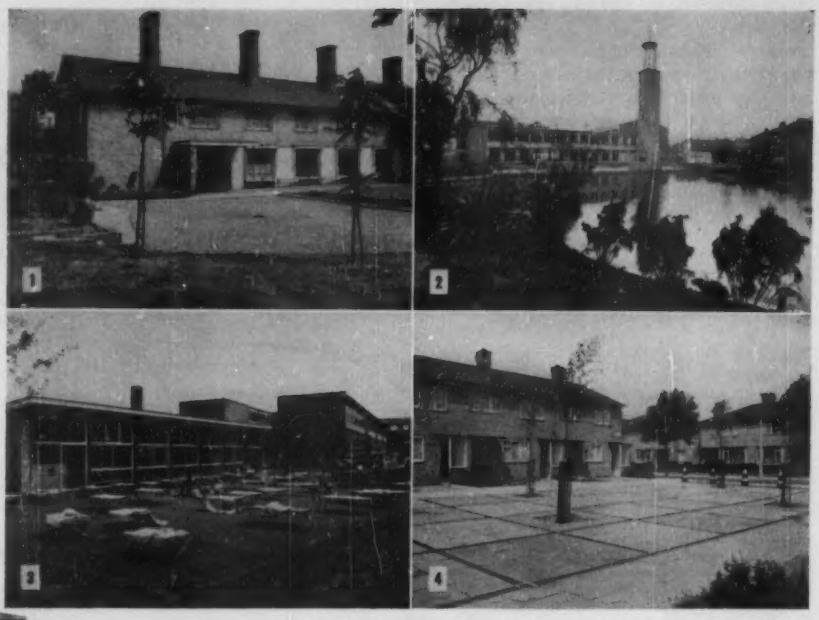
As our readers will recall,* 11 cities are selected each year for these awards conferred for outstanding citizen action for the betterment of the community. The improvement may occur in a variety of areas—better government, better schools, slum clearance, economy and efficiency, or other types of civic progress. The action for this year's contestants may have started last year or earlier, but during 1954 it should reach an important milestone.

The finalists are invited to send spokesmen to address the jury at the National Conference on Government which this year will be held in Kansas City, Mo., November 7-10.

* For a summary of the achievements of the 1953 awards winners, see the article starting on page 110 of the February 1954 issue of THE AMERICAN CITY. The March 1954 issue (pp. 114 ff.) tells the story of the runners-up.

By FRANK PAGE
English Journalist and Author

Where this clock tower stands was formerly a crowded street market area surrounded by old shops and houses. The clock dominates the new market place at the Lansbury Neighborhood.



1. This pleasant Old People's Home is one feature of the Lansbury Neighborhood community. 2. Strikingly modern Trinity Congregational Church, Poplar replaces one of the many buildings blitzed in this area of Dockland during the war. 3. The "sunshine" rest area for toddlers at the new Primary and Nursery School. 4. These cheerful two-story homes, replacing war-bombed houses, are part of the self-contained area of flats, shops, schools, and churches that the London County Council is building.

"Neighborhood Community" for London's Dockland

ONE OF THE MOST BADLY war-blitzed areas of London—Poplar in the East End Docklands—is now a favored place for visits by overseas architects, architectural students, and town planners. For here has taken shape a modern neighborhood community, an estate of new homes, shops, churches, and schools, which has been hailed as a splendid example of urban building.

The estate, called Lansbury in memory of George Lansbury, a great humanist and social worker and for many years a Member of Parliament, covers 124 acres. It will eventually house some 9,500 people, about 42% of the pre-war population. Total cost of the development will be approximately £1,600,000 ($4,480,000), of which £1,300,000 is being borne by the London County Council, together with £500,000 for acquisition of the site and clearance.

The scheme provides for 30 blocks of flat buildings of six, four, three, and two stories, terrace houses, special accommodations for the aged, and a home for old people. Secondary, primary, and nursery schools of a light color and airiness never previously seen in this congested Victorian-designed area have been built, together with a church of striking modernity of design.

Of the first five sites, 433 of the proposed 490 dwellings have been completed and are occupied. An additional 68 houses, 123 maisonettes, and 299 flats are being completed around the Crisp Street Market, a beautifully planned arcaded area with permanent shops and an open place for stall holders.

Traditional Materials

The buildings have all been designed by different architects who worked together with town planners as a team. The layout of the neighborhood has been designed as a series of visual groups. The buildings have been planned around open spaces of varying shapes and sizes, each with its own type of tree planting and its own character linked by convenient and safe pedestrian ways.

The children's playgrounds, which are located in the centers of blocks, are completely protected from traffic. Most buildings have been constructed with London stock bricks and purple gray slates, which are traditional building materials in this area of London.

All dwellings have the most modern plumbing equipment and boast planned kitchens. The Old People's Home accommodates 49 people in 33 single and eight double rooms. In two stories, it has a landscaped garden at the rear, five sitting rooms of varying sizes all fitted with radio, and a dining room wired for motion picture shows. Each of the old people's rooms has a washbowl and a closet.

Also finished are a Congregational church, a primary school for 320 juniors and 200 infants, a nursery school for 80 children, and a Roman Catholic secondary school for 450 boys and girls. A Roman Catholic church is under construction, and three new public houses have been built and opened.

New York State Code of Ethics Has Municipal Interest

AFTER study and recommendations by the Governor's Special Committee on Integrity and Ethical Standards in Government, a series of bills has been enacted in New York State and signed by Governor Thomas E. Dewey designed to develop a code of ethics for legislators and political leaders and also to establish a fair procedure code for legislative committees and commissions.

Two of the bills, which amend the public officers' law and take effect January 1, 1955, relate to establishing standards of conduct for state officers and employees and party officers concerning possible conflict between official duties and private business or professional activities. The provisions of these bills will be of interest to many municipalities and local governments that may want to consider similar or strengthened ethical standards and prohibitions in local ordinances.

Declaration of Intent

The declaration of intent, as stated in one of these bills (Chapter 696 of the Laws of 1954) reads as follows:

A continuing problem of a free government is the maintenance among its public servants of moral and ethical standards which are worthy and warrant the confidence of the people. The people are entitled to expect from their public servants a set of standards above the morals of the market place. A public official of a free government is entrusted with the welfare, prosperity, security and safety of the people he serves. In return for this trust, the people are entitled to know that no substantial conflict between private interests and official duties exists in those who serve them.

Government is and should be representative of all the people who elect it, and some conflict of interest is inherent in any representative form of government. Some conflicts of material interests which are improper for public officials may be prohibited by legislation. Others may arise in so many different forms and under such a variety of circumstances, that it would be unwise and unjust to proscribe them by statute with inflexible and penal sanctions which would limit public service to the very wealthy or the very poor. For matters of such complexity and close distinctions, the legislature finds that a code of ethics is desirable to set forth for the guidance of state officers and employees the general standards of conduct to be reasonably expected of them.

No officer or employee of a state agency, member of the legislature or legislative employee should have any interest, financial or otherwise, direct or indirect, or engage in any business or transaction of professional activity or incur any obligation of any nature, which is in substantial conflict with the proper discharge of his duties in the public interest.

Standards

More specifically, the act provides that no officer or employee of a state agency, member of the legislature, or legislative employee should:

(a) accept other employment that will impair his independence of judgment in the exercise of his official duties

(b) accept employment or engage in any business or professional activity that will require him to disclose confidential information which he has gained by reason of his official position or authority

(c) disclose confidential information acquired by him in the course of his official duties nor use such information to further his personal interests

(d) use or attempt to use his official position to secure unwarranted privileges or exemptions for himself or others

(e) by his conduct give reasonable basis for the impression that any person can improperly influence him or unduly enjoy his favor in the performance of his official duties, or that he is affected by the kinship, rank, position of influence of any party or person

(f) pursue a course of conduct that will raise suspicion among the public that he is likely to be engaged in acts that are in violation of his trust

(g) fail to file with the Secretary of State a written statement in the event that he has a financial interest, direct or indirect, having a value of $10,000 or more in any activity that is subject to the jurisdiction of a regulatory agency—which statement shall be open to public inspection.

An officer or employee of a state agency is also subject to the following standards:

(h) He should not engage in any transaction as representative or agent of the state with any business entity in which he has a direct or indirect financial interest that might reasonably tend to conflict with the proper discharge of his official duties.

(i) He should abstain from making personal investments in enterprises which he has reason to believe may be directly involved in decisions to be made by him or which will otherwise create substantial conflict between his duty to the public interest and his private interest.

(j) If employed on a full-time basis, neither he nor any firm or association of which he is a member, nor any corporation, a substantial portion of the stock of which is owned or controlled directly or indirectly by him, should sell goods or services to any person, firm, corporation or association which is licensed or whose rates are fixed by the state agency in which such officer or employee serves or is employed.

Parking Garages Tax-Exempt in Syracuse

THE NEW YORK STATE *Municipal Bulletin* for May 1954 reports that the Common Council of the City of Syracuse on April 26 approved legislation that would encourage the construction or re-construction of buildings used for off-street parking.

The new law grants real estate tax exemptions up to 15 years on new, altered, or renovated off-street parking structures which can handle at least 150 cars.

Seventy-five per cent of the floor space must be used exclusively for parking and no exemption would be granted on the land value.

George T. Driscall, Corporation Counsel of Syracuse, stated that if property constructed for use as a parking garage is diverted to another use, the owner forfeits his tax exemption.

In the rear of New Orlean's Union Passenger Terminal (close-up of facade at left) is $4,500,000 Claiborne Overpass; at lower right 152-foot Loyola Ave. extends from downtown area.

New Orleans Completes

Railroad Terminal Program

NEW ORLEANS' new $2,250,000 Union Station, the only municipally-owned railroad passenger terminal, was formally dedicated May 1 in a double-header civic celebration. It is the end product of a $57,000,000 city-wide public improvements program.

Following the dedication, a parade carried participants to City Hall, where the inaugural ceremonies for the Mayor and members of the Council took place.

Mayor deLesseps S. "Chep" Morrison, who led the long-time fight for both the Union Station-Grade Separation program and the new model Home Rule City Charter to provide modern and more efficient government for New Orleans, began his third term of office. The new position of Chief Administrative Officer is being filled by David R. McGuire, Jr., former director of Public Relations for the city.

As described by Mayor Morrison, the new Union Passenger Terminal plant, which is completely air-conditioned, is unique in its financing, its ownership, and administrative set-up as well.

The program has replaced five obsolete, scattered depots with one Union Station. This has made it possible for the city to achieve unification of all railroad passenger tracks in the city, eliminating more than 100 dangerous grade crossings; construct a system of more than 20 overpasses and underpasses, and build needed arterial streets for expediting traffic movement.

One of the corollary benefits has been the filling of the New Basin Canal, an obsolete waterway paralleled by four sets of railroad tracks at various points that extended from Lake Pontchartrain for six miles into the heart of the city. Narrow lift bridges at all cross-town streets were responsible for serious traffic congestion.

Closing and filling of the state-owned canal was authorized by constitutional amendment as a vital part of the Union Passenger Terminal-Grade Separation program, and this 300-foot wide valuable right-of-way was conveyed to the city for $1. Today a portion of the canal is used as a roadbed for main approach tracks into the new station and most of the filled canal area will become right-of-way for a new superhighway entrance into the city from the north.

Cost of the terminal is paid by the railroads from proceeds of a $15,000,000 revenue bond issued in 1948 through the city but with the eight trunkline railroads involved in the program obligated individually and collectively to pay off this bond issue over a period of 50 years. In addition, the railroads have contributed additional funds for the terminal plant, for filling the New Basin Canal, for track relocation, and for new freight yards, plus 15% of the cost of the grade separation structures at arterial streets which cross the unified passenger tracks.

Total cost of the program to the railroads is $25,500,000. The lines of course have the right to dispose of their present terminal properties as they like.

The City of New Orleans is paying 85% of the cost of the grade separation program, which totals approximately $23,000,000; and also is paying for construction of major street improvements related to the program.

Finally, the state and federal governments are financing several key grade separations located on the U.S.-State highway system, as well as development of the new Pontchartrain Expressway on the now-filled New Basin Canal.

Construction and administration of the new passenger terminal is under the Union Passenger Terminal Committee, composed of representatives of the city, the municipally-owned Public Belt Railroad Commission, a freight-switching line, the five members of the New Orleans Railroad Terminal Board, and representatives of the railroads that will use the terminal.

The Terminal Board, a citizen agency of the city government, has supervised the grade separation construction program.

Collecting Friends With Bills

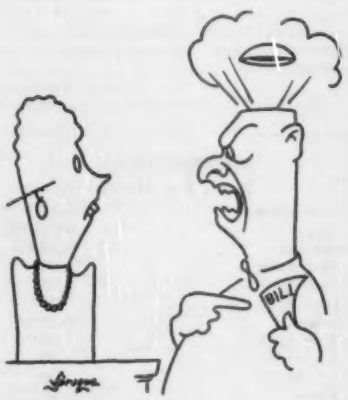
By GERTRUDE BELL
Clerk
Board of Public Works
Liberty, Mo.

THE GIRL behind the counter is your strongest link with your municipal stockholders, and responsible for much more than the cash she collects. When things go smoothly, the customers don't look beyond her. Otherwise, the head office may be cluttered with individual complaints.

While your disgruntled customer can't transfer his account to a competitor, he can help defeat a bond issue, and he can withhold cooperation should you appeal in an emergency.

So, you'll be wise to employ more than a competent bookkeeper and cashier. She'll need to be something of a plumber or electrician, an inspired diplomat, and it will help wonderfully if she's psychic. She'll need a sense of humor—and endless patience.

Ordinarily, municipal utilities don't advertise, but an interested cashier can disseminate solid information and also win understanding. In Liberty, Mo., for example, customers from other areas are often genuinely interested in our hard-water problems, and those from flat country are amazed that we pump against a 156-pound static head. Power costs, and higher rates, make sense when that's explained. But, be sure the girl behind the counter understands before venturing into this information.



From the administrators the girl behind the counter deserves solid backing. Don't overrule her when she enforces a regulation you approved or voted. On the other hand, don't envelop her in such a cocoon of red tape that she can't use common sense. If she can't exercise judgment, she has no business behind your counter, and there are times when a bent rule is worth more than a full-page ad.

When Things Go Wrong

When things go wrong the girl behind the counter takes the rap first, and her tact determines whether you take it also. If she's fool enough to try to persuade a customer that hard water is soft, he'll move on up the line with his complaint to you, sure as shooting. If she'll just agree, sympathize, perhaps tell him what it did to her hair, he'll leave happier.

Will the boys re-read a meter, if the bill is way out of line? It's stupid to anger a customer, then have to back up next time the reader goes around. If the reading is correct she'll make a friend if she warns the consumer at once. Many of our bills in Liberty go out almost three weeks after the meter is read, and in that length of time a small leak may become a big one.

Are the meters kept repaired? It isn't fair, either to her or to the consumer, to ask her to estimate repeatedly.

Don't encourage her to send out a bill she doesn't understand; that's the one she'll have to explain. She'll soon get the hang of converting gallons or cubic feet or kilowatts into dollars, but can she convert them back? It's disconcerting if a customer wants to know how many he gets for $3.67, and embarrassing if she can't tell him.

For years in Liberty we have warned owners of unoccupied buildings to have the plumbing drained before freezing weather sets in. It's a nuisance, doesn't put a penny in the cash drawer, but it makes friends if your girl behind the counter gives this reminder.

Meter Reading

Can your cashier read a meter? People persist in reading their own, and you're ahead if they read correctly. We keep a dial on the counter, and go into the matter at length if necessary. Let the consumer convince himself!

Accuracy wins confidence. Good humor disarms dissatisfaction. It isn't necessary to know every customer by name, but it's disastrous to greet him distantly or indifferently month after month. After all, he has a stake in your business, and this is something the girl behind the counter—and all municipal officials—should never forget.

Loyalty Oaths for Municipal Employees

BY STATUTES in at least eight states—California, Kansas, Maryland, New Jersey, North Dakota, Oregon, Texas, and Washington — municipal officials are required to promise loyalty to the American form of government. This information was received by the American Municipal Association in answer to a query sent to 16 leagues of municipalities, and the findings are discussed in a recently published pamphlet entitled, "Loyalty Oaths for Municipal Employees."

Make Water Metering Universal

(*Continued from page 110*)

purposes from 260 gallons per capita per day to 132 gallons with the adoption of universal metering. East Point, Ga., cut daily demand from 300 gallons to 175 gallons, and San Antonio, Texas, cut demand from 126 gallons to 87 gallons, both by the installation of meters.[2]

The lack of meters in New York City offers an interesting illustration of water wastage. During 1949-50, the city suffered a critical water shortage. A vigorous campaign achieved a diminished demand by domestic users only, from 85 gallons to 60 gallons per capita per day. At the same time, Detroit, another great industrial city similar in many respects to New York, except for its practice of universal metering, was using only 49.5 gallons for domestic purposes without any effort at conservation. In 1947 and 1948, Minneapolis was distributing between 64 and 58 gallons for domestic purposes.[3]

Back in 1917, Middletown, Conn., metered all its water services and curtailed demand from 135 gallons per capita per day to 78 gallons for all purposes. G. Allen Schafer, superintendent of public works at that time, stated that a new reservoir would have been necessary if the flat-rate policy had been continued.

In 1932, Madisonville, Ky., dropped its per capita daily use of water for all purposes from 225 gallons to 105 gallons by the use of meters. Hall Arnold, superintendent at that time, noted a 50% cut in operating expense.

Akron, Ohio, metered all its water services in 1920 and cut per capita demand for all purposes from 117 gallons to 93 and eventually to about 80 gallons per day. Wendell LaDue, chief engineer, reported at the time that were the system unmetered, the city would need an additional supply, costing $5,000,000. The meters cut pumping costs one-third.[4] Unmetered service is an expensive load on the city's water supply and distribution system. This method of water service cannot help but result in unfair distribution of water costs among users.

The fact that 90% to 95% of the water services use meters is in itself a powerful reason for the remaining 5% to 10% to use them also and obtain for themselves the same important benefits.

1. A. Hazen, *Meter Rates for Water Works* (N.Y.C.: John Wiley & Sons, 1917).
2. Water Meter Institute, *The Business of Metered Water.*
3. The American City, *New York City's Water Supply,* 1950.
4. Water Meter Institute, *op. cit.*

Modern Water Rates

PART III

ALHAMBRA, CALIF.

Rates Bimonthly

Size of Meter (in inches)	*Minimum Charges*
⅝	$1.00
1	1.25
1½	1.50
2	2.00
3	3.00
4	4.00
6	6.00

Volume of Water (in cubic feet)	*Metered Rates* (per 100 cubic feet)
First 10,000	$0.125
Next 40,000	.11
" 50,000	.09
" 100,000	.07

Miscellaneous Regulations

1. The city makes no charge for water used solely for fire protection.
2. Lawn sprinkling is not restricted.
3. Air conditioners of 4 tons capacity or larger are required to have recirculation devices.

General Data

Population served..... 54,000
Services (100% metered)..... 15,450
Hydrants..... 841
Miles of mains..... 150
Supply—wells
Treatment—none
Storage facilities—one 85,000-gallon elevated tank
27,675,000 gallons in 11 covered reservoirs
Average demand..... 7 mgd
Plant capacity..... 20 mgd

Customer's Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
6,000	800	$1.00
10,000	1,333	1.67
20,000	2,667	3.33

Remarks

1. These rates have been in effect since 1943.
2. Water is distributed free to other municipal departments only.
3. About $50,000 is diverted to the city's general fund annually in lieu of franchise payment.
4. The Water Department owns all meters and places them in a box at the lot line.
5. A separate charge for collection of garbage and rubbish is paid on the same bill.
6. Bills are prepared on a Burroughs automatic billing machine.

John W. Clay
Superintendent of Water

MANHATTAN BEACH, CALIF.

Rates Bimonthly

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 400	$3.20 min.
Next 600	.15
" 600	.13
Over 1,600	.11

Miscellaneous Regulations

1. No fire-service charges are made, either for public or private protection.
2. In emergencies, restrictions are placed on lawn sprinkling and the use of water for swimming pools. No regulations exist on air conditioning.

General Data

Population served..... 29,000
Services (100% metered)..... 9,280
Hydrants..... 355
Valves..... 1,500
Miles of mains..... 86
Supply—wells and Colorado River water from Metropolitan Water District
Treatment—chlorination
Storage— 300,000-gallon elevated tank
400,000-gallon standpipe
2,800,000-gallon open reservoir
Average demand..... 2.6 mgd
Plant capacity..... 10.8 mgd

Customer's Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
6,000	800	$3.80
10,000	1,333	4.62
20,000	2,667	6.09

Remarks

1. Rates have remained unchanged for many years.
2. Other municipal departments receive water without charge.
3. The city diverts 5% of the gross water revenue to other municipal uses.
4. The city owns, but the water user pays for, each meter, which is placed at the lot line. Meters are checked for accuracy at least once every 10 years.
5. Bills are prepared on a Burroughs billing machine. Refuse-service charge is entered separately on the same bill.

W. H. Bottelson
Assistant Water Superintendent

SPUR, TEXAS

Rates Per Month

Volume of Water (in gallons)	*Charges* (per 1,000 gallons)
Residential	$1.80 min.
First 3,000	.60
Next 2,000	.50
Over 5,000	.15
Commercial	$1.80 min.
First 3,000	.60
Next 10,000	.50
" 10,000	.40
Excess	.15

Miscellaneous Regulations

1. No restrictions on lawn sprinkling or air conditioning.
2. No charges made for public or private fire protection.

General Data

Population served..... 3,500
Services (100% metered)..... 1,100
Supply—wells
Treatment—chlorination
Storage facilities—two elevated tanks totaling 680,000 gallons
Average demand—500,000 gallons per day

Residential Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.80
5,000	667	2.80
10,000	1,333	3.55

Remarks

1. Rates have remained unchanged in 10 years.
2. Municipality owns all meters which are placed at the lot line. Accuracy is checked as requested or when readings give evidence of inaccuracy.
3. Some water is occasionally diverted to other municipal uses. No free water is distributed to any other services.
4. Bills are prepared on a Burroughs Sensimatic "300" billing machine.

CHARLES FOX, JR.
City Secretary

SANTA PAULA (CALIF.) WATER WORKS, LTD.

Rates Per Month

Size of Meter (in inches)	*Minimum Charges*
⅝	$1.25
¾	1.75
1	2.50
1½	4.00
2	6.00
3	12.00
4	20.00
6	40.00
8	60.00

Volume of Water (in cubic feet)	*Quantity Rate* (per 100 cubic feet)
First 500	$ .25
Next 4,500	.15
" 5,000	.12
Over 10,000	.10

Fire Service Rates Per Month

	Charges Per Hydrant
Hydrants owned and maintained by the municipality	
tapping 4-inch or larger main	$1.00
tapping smaller mains	.50
Hydrants owned and maintained by water company	3.00

Miscellaneous Regulations

1. Minimum charge entitles the user to the quantity of water that the monthly minimum charge will purchase at the quantity rate.
2. No restrictions are placed against users either for lawn sprinkling or air conditioning.

General Data

Population served..... 14,200
Services (100% metered)..... 3,383
Hydrants..... 212
Valves..... 652
Miles of mains..... 52
Source of supply—rivers and wells
Treatment—chlorination
Storage facilities—three standpipes totaling 1,036,000 gallons
covered reservoirs with 5,058,000 gallons capacity
Average demand..... 1.95 mgd
Plant capacity..... 5 mgd

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.25
5,000	667	1.55
10,000	1,333	2.60

Remarks

1. Since this is a privately operated company, it donates no free water. All services are billed.
2. The company owns all meters, placing them at the lot line.
3. Rates were established February 15, 1954.

V. M. FREEMAN
Manager and Engineer

ROUNDUP, MONT.

Rates Per Month

Volume of Water (in gallons)	*Charges*
First 3,000	$1.50
Next 2,000	1.00
Excess per 1,000	.15

Miscellaneous Regulations

1. A discount of 10% is made on bills paid by the tenth of the month.
2. A discount of 25% is made on all water used in excess of 5,000 gallons during May to September.
3. No restrictions on water use for air conditioners.
4. No fire-service charges are levied.
5. Sodium fluoride is added to the water as a dental health measure.

General Data

Population served..... 3,000
Services (88% metered)..... 975
Hydrants..... 60
Valves..... 200
Miles of main..... 12
Supply—wells
Treatment—chlorination
Storage facilities—1,000,000-gallon covered reservoir
Average demand—150,000 gallons daily
Plant capacity..... 2.5 mgd

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.50
5,000	667	2.50
10,000	1,333	3.25

Remarks

1. Rates have remained unchanged for several years.
2. City provides water free of charge to all churches.
3. Meters are owned by the Water Department; are placed in the building occupied by the water user.
4. Bills are prepared without the use of automatic billing machines.

E. O. CHRISTIAN
Bookkeeper

GALESBURG, ILL.

Rates Per Quarter

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 1,200	$ .45
Next 12,000	.27
" 40,000	.18
Excess	.135

Miscellaneous Regulations

1. A penalty of 10% is added for late payment.
2. Separate charges are made for private fire protection, but no charges are made for public fire protection.
3. No restrictions are placed on lawn sprinkling or air conditioning.

General Data

Population served..... 33,000
Services (100% metered)..... 10,006
Hydrants..... 827
Miles of mains..... 105
Supply—wells
Treatment—chlorination
Storage facilities—6,750,000 gallons in covered reservoirs
Average demand..... 4 mgd
Plant capacity..... 6 mgd

Customer's Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$5.40
15,000	2,000	7.56
30,000	4,000	12.96

Remarks

1. Rates were established in November 1950, raising the previous scale 20%.
2. Department supplies water free to other municipal departments only. Surplus funds are diverted to the general fund.
3. The water user owns his meter. The meter is placed in the building occupied by the user.
4. Bills are processed on a Burroughs automatic machine.

GEORGE C. LOFGREN
Water Superintendent

NEW KENSINGTON, PA. (Municipal Authority)

Rates Per Quarter

Size of Meter (in inches)	*Minimum Charges*
⅝	$ 5.08
¾	7.02
1	9.36
1¼	14.04
1½	18.72
2	37.44
3	78.00
4	156.00
6	234.00
8	312.00

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 1,500	$0.338
Next 10,000	.312
" 20,000	.281
" 20,000	.234
" 20,000	.187
" 200,000	.156
" 200,000	.125
" 200,000	.094
Over 671,500	.0819

Fire-Service Charges Per Year

PRIVATE

Size of Connection (inch-tap)	*Minimum Charge*
2	$ 93.60
4	187.20
6	312.00
8	468.00

For Each Connection	*Charges*
fire hydrant	$70.20
2½-inch hose opening	39.00
sprinkler head	0.08

PUBLIC

Service	*Charge*
Each fire hydrant	$35.00
Sewer flushing (per 1,000 gals.)	0.10

Miscellaneous Regulations

1. Residential users are billed quarterly; some commercial and industrial accounts are billed monthly. Monthly minimum charges are ⅓ of the quarterly; monthly metered charges are for ⅓ the volume of water.
2. Each minimum charge entitles the user to the number of cubic feet that the minimum charge will cover, as computed by the metered charge.
3. In private fire protection, the user is entitled to the number of hydrants, hose connections, or sprinkler

(*Continued on page 124*)

(Continued from page 123)

heads for which the minimum charge for the connection utilized will pay.

4. When industry uses water through the same line that provides fire service, no minimum charge is made.

5. When the charge for water amounts to double the minimum quarterly rate for the meter or meters, no additional charge is made for fire service.

6. The Authority does not restrict lawn sprinkling or air conditioning.

7. A 10% penalty is added if bills are not paid within 10 days.

General Data

Population served	40,000
Services (100% metered)	10,046
Hydrants	565
Valves	1,283
Miles of mains	84
Supply—river	
Treatment—rapid sand filter	
Storage facilities—three elevated tanks totaling 700,000 gallons one open reservoir of 10,000,000 gallons	
Average daily demand	5.4 mgd
Plant capacity	6 mgd

Customer's Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$5.06
15,000	2,000	6.64
30,000	4,000	12.88

Remarks

1. Rates have risen 20% in the last five years.

2. The Authority provides no free or discounted water service.

3. The Authority owns all meters, installs most of them in the building occupied by user. Domestic meters are checked once every 10 years; industrial, once a year.

4. Bills are prepared on a Burroughs Sensimatic billing machine.

J. M. Alvarez
Office Manager

LYNBROOK, N. Y. LONG ISLAND WATER CORPORATION

Rates Per Quarter

Size of Meter (in inches)	*Volume Allowed* (in gallons)	*Minimum Charge*
⅝	9,000	$ 5.04
¾	12,000	6.39
1	21,000	10.44
1½	39,000	18.54
2	63,000	29.34
3	120,000	49.89
4	198,000	71.73
6	390,000	125.49
8	630,000	192.69

Volume of Water (in gallons)	*Metered Rates* (per 1,000 gallons)
First 9,000	$0.56
Next 81,000	.45
Excess	.28

Miscellaneous Regulations

1. Fire service charges are made at the rate of $55 per hydrant.

2. Customers using six months or less of service are charged for two quarterly minimums.

3. Corporation serves southern half of Nassau County.

4. Customers may be billed either quarterly or monthly. Minimum monthly charges are one-third the rates shown above. Monthly blocks are one-third the volume.

5. Lawn sprinkling is permitted by use of automatic irrigation systems between 9 p.m. and 6 a.m. Corporation reserves right to prohibit lawn sprinkling at any time deemed necessary.

General Data

Population served	181,681
Services (99% metered)	52,826
Hydrants	3,244
Valves	7,850
Miles of mains	546
Supply—wells	
Treatment—lime, chlorine, Calgon, copper sulphate (not all in one place)	
Storage facilities— 500,000 gallons in 3 elevated tanks 4,700,000 in open reservoirs 3,000,000 in covered reservoirs	
Average demand	11.7 mgd
Plant capacity	32.4 mgd

Customer's Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$5.04
15,000	2,000	7.74
30,000	4,000	14.49

Remarks

1. Rates went into effect January 1, 1954 and represent an increase of 12.5%, or 64% over the last five years.

2. Meters are checked for accuracy once every seven years.

3. Corporation owns meters, places some in meter boxes at lot line and balance in building occupied by user.

4. Burroughs automatic machine is used for billing.

P. L. McLaughlin
Vice President and General Manager

EAST BAY (CALIF.) MUNICIPAL UTILITY DISTRICT

(serves 13 incorporated and many unincorporated communities in Oakland area)

Rates Per Month

Size of Meter (in inches)	*Service Charge*	*Minimum Billing* (cubic feet rated at metered charges)
⅝ and ¾	$ 1.00	300
1	2.50	1,200
1½	5.00	2,500
2	8.00	4,000
3	15.00	7,500
4	25.00	12,500
6	50.00	25,000
8	100.00	50,000
10	150.00	75,000
12	200.00	100,000

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 3,300	$ .20
Next 30,000	.18
" 300,000	.12
Over 333,300	.09

Private Fire-Service Rates

Size of Meter (in inches)	*Charges Per Month*
4 or less	$4.00
6	6.00
8	8.00
10	10.00

Miscellaneous Regulations

1. Residential users are billed bimonthly; large users, monthly.

2. All amounts are doubled for bimonthly billing.

3. No restrictions exist on use of water for lawn sprinkling or air conditioning.

General Data

Population served	1,000,000
Services (100% metered)	255,443
Hydrants	9,289
Valves	27,615
Miles of mains	2,293
Supply—river and impounding reservoir	
Treatment—aeration, coagulation, sedimentation, filtration, chlorination	
Storage facilities—297,665,000 gallons in open reservoirs 90,943,000 gallons in covered reservoirs	
Average demand	115 mgd
Plant capacity	218 mgd

Customer's Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
6,000	800	$3.60
10,000	1,333	4.80
20,000	2,667	5.40

Remarks

1. Present rates went into effect in September 1953 and represent a 10% decrease. On September 1, 1951, the service charge on a ⅝-inch meter was increased from $0.50 to $1.00. Corresponding increases were made on larger size meters.

2. The District distributes no water to any user without charge except water used in fighting fires. No water funds are diverted to other municipal uses.

3. The District owns all meters and places them in a box at the lot line. Large meters are checked annually; small ones, when meter totals seem erroneous.

4. Bills are prepared with the use of International Business Machines billing equipment.

C. P. Tanner
Director of Customer Relations

DES PLAINES, ILL.

Rates Per Quarter

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 10,000	$ .33
Next 10,000	.22
Over 20,000	.16½

Miscellaneous Regulations

1. Rates for out-of-city users are doubled.

2. If bills are not paid within ten days, service is discontinued and a charge of $1.00 is assessed for renewal of service, plus a $2.00 service charge.

3. No special charges are made for public or private fire protection.

4. City, divided into two sections, is permitted three hours of lawn sprinkling, each on alternate evenings.

5. Air conditioning units larger than 5 tons must recirculate the water used.

General Data

Population served	22,000
Services (100% metered)	6,109
Hydrants	594
Valves	650
Miles of mains	66
Source of supply—wells	
Treatment—softening, iron removal	
Storage facilities— 150,000-gallon elevated tank 1,000,000-gallon covered reservoir	
Average demand	1.5 mgd
Plant capacity	2.3 mgd

Customer's Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$3.96
15,000	2,000	6.60
30,000	4,000	13.20

Remarks

1. Present rates have remained unchanged for many years.

2. Water is supplied free to other municipal departments only.

3. Meters are the property of the water users. Meters for residential users are placed in the building occupied by the user. Meters for commercial users are placed in a meter box at the lot line. Meters are checked once every four years.

4. Bills are prepared on a Remington Rand automatic billing machine.

E. R. Warnicke
Superintendent of Public Works

Before. Inglewood's old City Hall, built in 1923 and relatively new as American city halls go, was already too small, unattractive, and inadequate for a progressive western city.

After. It's the same old building, but a $250,000 face-lifting and expansion has converted Inglewood's City Hall into a beautiful spacious quarters of which its citizens are proud.

Inglewood Modernizes City Hall On Pay - As - You - Go Plan

By F. R. COOP
Administrative Officer
Inglewood, Calif.

THE complete modernization and enlargement of its City Hall recently culminated a five-year, pay-as-you-go capital improvement program for Inglewood, Calif. A $250,000 face-lifting and remodeling job converted the old City Hall (1923 vintage), an equally old adjacent fire-police station, and a WPA-built city garage into the spacious, beautiful quarters which are now the focal point of Inglewood's civic center.

Nicknamed "Harbor of the Air," Inglewood is a city of 50,000, located in metropolitan Los Angeles near the International Airport. Its business district is a shopping center for a quarter of a million people.

A new central Fire Station (1950, $100,000), a new Police Station (1951, $300,000) and a new County Court Building (erected in 1950 on city-acquired property) are the other major units in the civic center. Built around Grevillea Park, a palm-tree-shaded green spot, one block west of Inglewood's business district, these new civic center edifices adjoin such older community landmarks as the Public Library, the Girl Scout House, the School Administration Building and a Junior High School.

Made possible by the adoption of new revenue measures at the close of World War II (sales tax, business licenses, admissions tax), which provided income in excess of operating expenses, Inglewood's capital improvement plan, adopted in 1949, has been carried to completion on a strict pay-as-you-go basis. The plan featured park development and major construction in the water system, as well as the new civic center.

The City Hall looks like a new building. Although the walls and roofs of the three old structures are basically the same, their appearance, as may be seen in the accompanying photographs, was drastically changed by the modernization. By converting the old fire stations and garage to city hall purposes, floor space has been doubled to over 30,000 square feet.

The City Attorney and the City Prosecutor, formerly in private law offices, now have a fine second floor suite with a beautifully appointed law library in the main City Hall. Across the hall is the enlarged Council Chamber, whose decor effectively combines attractive color with quiet dignity. Nearby, the Mayor and Administrative Officer, and their staff, have four commodious rooms instead of the two small ones.

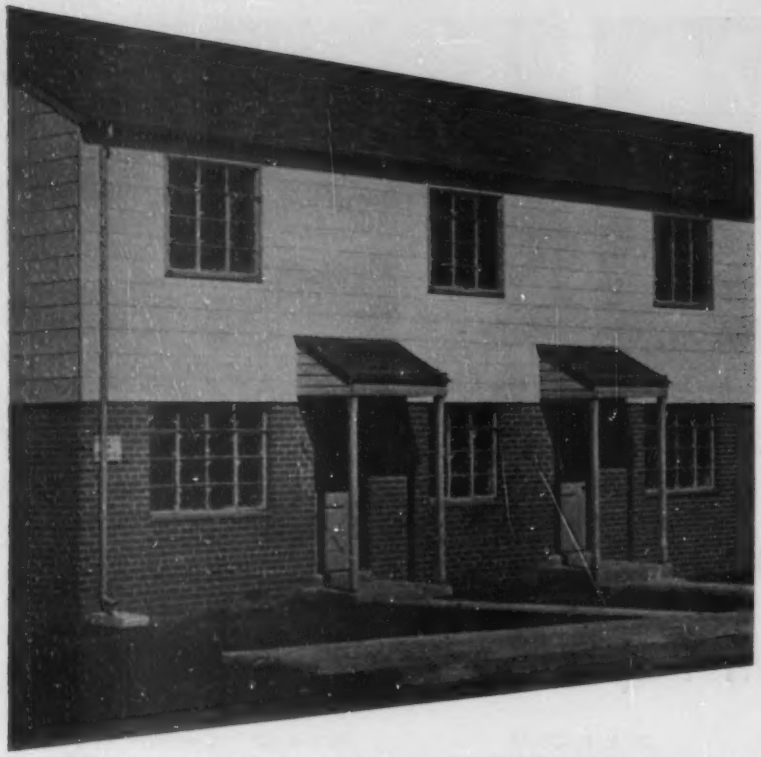
A much-used conference room, the city clerk's suite, the finance department, the personnel office, an information desk, a room housing the massive equipment needed for the new dial telephone system, a storeroom for office supplies, a vacant office, and several utility rooms complete the line-up in the City Hall.

In the old fire station, now modernized beyond recognition and known as the East Annex, are three departments which were formerly squeezed into cramped quarters in the old City Hall. The Public Works department has the second floor. The Water and Building Inspection departments share the ground floor.

Civil Defense Center Included

The North Annex, once a plain garage, now provides space for the Park and Recreation Director, a civil defense control center, an employees' lunchroom and kitchen, a warehouse, 50 feet by 20 feet, an ammunition-loading room, a dead-storage vault, a big unallocated office, a radio-repair shop, a parking-meter repair shop, and storage space for four automobiles and nine motorcycles. The City Hall is connected to the North Annex by a covered walkway, and to the East Annex by an enclosed passageway at second floor level. A 30-car employees' and public parking lot is between the North Annex and the City Hall.

The remodeling was planned by the City Council, the Administrative Officer and Architect Marion Varner of Pasadena for 18 months prior to the contract letting in April 1953. Inglewood contractor R. E. Payne, who was low among 5 bidders, received the award, and the work was so planned as not to interrupt the city's business.



Hagerstown's public housing project is simple and economical in concept.

Public Housing Comes to Hagerstown, Md.

By MILES R. FRISBIE
Public Relations Consultant
Schenectady, N. Y.

IT IS A COMMON FALLACY that the only localities where slums are a threat to the public health, morals, economic stability, and sound fiscal status of the community are the larger cities of the United States—those with populations of 250,000 or more. Nothing could be more erroneous. There are actually thousands of small cities and villages throughout the country also in need of the civic benefits that are implicit in a low-rent public-housing, slum clearance, and rehabilitation program.

Let one of these smaller but more alert cities serve as the example. Hagerstown, Md., for instance. There is another aspect besides its size which peculiarly qualifies Hagerstown for use as the example, and that is the city's age.

Overcrowding Develops

Housing had long been in short supply in Hagerstown, except for those families in the upper-income brackets. The result of the rapid growth of the airplane industry on the low-wage groups was the crowding of large numbers of immigrant families and single workers into old, wornout dwellings, with whole families as well as roomers occupying a single room, taking turns sleeping in the beds. What had been a one-family dwelling became mere shelter with families occupying every available room. In such circumstances, sanitation is unknown, and the owners of such properties found themselves possessed with the most profitable investment in the United States—slum dwellings in a busy industrial community.

By 1950, Hagerstown was a bustling, thriving community whose businessmen and civic leaders were thinking about the further possible expansion of the airplane plants and the development of satellite industries. There was some sporadic activity in the construction of homes for the executives in the new industries, but none for the men in the shops whose needs for shelter forced increasing encroachment upon what had been standard housing, while it set in motion a growth of substandard and slum housing areas. The increase in population created the usual demand for basic municipal services, while the steady depreciation of the taxable value of the workers' housing began to impair the city's basic fiscal status.

Hagerstown Woke Up in 1950

Nineteen hundred and fifty was a year of awakening for Hagerstown citizens and public officials. Personnel officers of industries, who were considering the enlargment of existing plants or the location of new plants in the city, held before the City Fathers the United States Bureau of the Census data which revealed that in 1950 Hagerstown had a population of 36,260 and a total of 11,478 dwellings. Of these dwellings, 3,144 were substandard, many of them so ancient and badly deteriorated as to be beyond repair and totally unfit for human habitation, according to the standards of the American Public Health Association.

Two residential sections particularly interested municipal officials and taxpayers, as they disclosed that the owners of standard industrial, commercial, and residential properties were actually subsidizing the landlords of the slums who were realizing handsome rentals from properties assessed at almost nothing.

Mayor Mills and the members of the Common Council realized that the private owners of such profitable housing would not kill the goose that laid such golden eggs by bringing those properties up to standard or replacing those beyond rehabilitation

with more up-to-date accommodations.

The information about Hagerstown's housing, shown by the Census, was not the surprise to the Mayor and members of the Common Council that it was to the citizens generally. During 1949, these members of the city government had been quietly, but thoroughly, examining the housing of the city and visiting other cities that had public housing projects. There had likewise been some very careful studies made of the assessment rolls. It was apparent to the City Fathers that Hagerstown was confronted with a situation that lay clearly within Lincoln's definition of governmental responsibility—"the duty of the Government to do for the people those things they cannot do for themselves." The result was a special meeting of the Mayor and Common Council held on November 28, 1949, at which time a resolution was adopted authorizing the creation of a local housing authority and directing the Mayor to appoint its members forthwith, who should, as speedily as possible, make application to the Public Housing Administration for such assistance as might be needed to provide an adequate supply of public housing for Hagerstown at the same time the slum areas of the city were eliminated.

Mayor Mills immediately appointed, as commissioners of the authority, H. B. Hoopes, Chairman, Rev. William M. Norment, Hunton Mills, Leonard Mathias, and D. E. McLaughlin, all of whom served without compensation. The Commissioners promptly selected Robert H. Shank as the Executive Director of the Housing Authority of the City of Hagerstown. On December 29, 1949, the application of the Housing Authority of the City of Hagerstown for 250 units of low-rent public housing was received by the New York Field Office of the Public Housing Administration and approved January 17, 1950. The application, as approved, split the 250 units requested into two projects: one of 40 units, known as Parkside Homes, and the other of 210 units, known as Westview Homes.

A Record of Cooperation

The city government and the Housing Authority of the City of Hagerstown established a record of constructive cooperation which began with the signing of a Cooperation Agreement between the Housing Authority and the city on June 30, 1950, whereby the city agreed (1) to accept 2½% of the shelter rent of the projects in lieu of taxes; (2) to eliminate within five years by demolition, condemnation, closing, or compulsory repair or improvement of unsafe or insanitary dwellings, units substantially equal in number to the number of newly constructed units (approximately 50% of such units have been eliminated), and (3) the municipality agreed to furnish such services to the local authority and its tenants as are furnished to other dwellings and inhabitants of the municipality.

As authorized by the laws of the State of Maryland, Hagerstown's Housing Authority also signed an Annual Contributions Contract with the Public Housing Administration, whereby the PHA would cooperate with the Authority in the construction, financing, and management of its low-rent public housing projects.

Following the execution of this contract, the Authority borrowed such funds as were necessary from the PHA, at 2½% interest, for the construction of the projects. In November 1952 the Authority sold a 40-year bond issue in the amount of $2,987,000 to private investors and repaid the borrowed government funds, together with the interest on the same.

The Public Housing Administration agreed to provide an annual subsidy adequate to meet the difference between the income of the local authority from the rents, and the cost of management, interest, and retirement payments. On its part the Housing Authority of the City of Hagerstown agreed to establish rents for low-income families, according to tenant income and family size.

Income Limits of Projects

Pursuant to its agreement with the PHA, the Housing Authority established the income limits for family occupancy and the procedure for the selection of the tenants. The income limits are:

Number of Persons in Family	*Maximum Income for Admission*	*Maximum Income for Continued Occupancy*
2	$2,500	$3,125
3 or 4	2,800	3,500
5 or 6	3,000	3,750
7 or more	3,200	4,000

The rent includes all utilities and the use of a refrigerator and stove. The minimum rent is $21 per month. The average rent for the 210 Westview Homes, occupied by white families, was $40.48, as of April 1, 1953. The average rent for the 40 Parkside Homes, for colored families, was $35.32, as of April 1, 1953. The estimated utility cost (included in the rent) will be about $18 per month.

Eligible families are selected from city and county residents in the following order of preference: (1) families of disabled veterans; (2) families of deceased veterans and servicemen; (3) families of other veterans and servicemen; (4) others according to their urgency of housing need, and who are currently living in substandard dwellings, or in dwellings which are overcrowded, or who are low-income families without housing, or about to be without housing through no fault of their own.

Occupancy

Occupancy of the projects did not await final completion of the entire project, for as soon as a structure was ready, the tenants were moved in. Occupancy began on April 15, 1952, and all 250 units of the one-, two-, three-, and four-bedroom accommodations, with kitchen, living room, and bath, were occupied by October 1952. There has been a waiting list ever since. The families living in Westview Homes have more than 500 children, while the 40 families in Parkside Homes have a comparable number of children.

Good Business for the City

The city had previously received only $335 yearly in taxes from the same areas when they were privately owned, and the county, $1,005. The Housing Authority, which agreed to pay 2½% of shelter rent to the city in lieu of taxes, and 7½% to the county, in the first year of management actually paid $2,118.61 to the city and $6,355.81 to the county.

A further advantage to the city is the purchase by the authority from the city of water and electricity, for which the average monthly payment is approximately $1,000. The city thus received a considerable revenue from the Authority, and outside of normal expenses for services provided to all property owners and citizens, has made no financial outlay for or on the projects. The county also has made no expenditure for the project.

Both the City of Hagerstown and the Housing Authority always welcome visitors to inspect the projects and will be glad to furnish to municipal officials or any interested citizens or organizations any additional information they may desire. They have a saying in Hagerstown that merits consideration by municipal officials, welfare organizations, and students: *"Public Housing is a Public Benefit."*

Pax-all's big 6' wide, ¾ yd. loading bucket enables full crew to *load from both sides at same time.* Takes one man only one second to start automatic loading cycle . . . then he is free to go for next container.

Why Pax-all* is the best refuse collection system for your city

Before you buy any new refuse collection *equipment* — or sign any contracts with *private haulers* — it will pay your city to investigate the *economy* of having your refuse collected this efficient, modern way with St. Paul Pax-alls. For Pax-alls not only eliminate the unsanitary condition of dripping, blowing, stinking garbage . . . they also give you *faster, more dependable collection of BOTH garbage and rubbish at lower net cost per ton than any other method.* Yet you get all these job-proved Pax-all advantages without any sacrifice in equipment quality or long-term performance. Your local St. Paul Distributor will gladly arrange a convincing Pax-all demonstration without any obligation. Just drop us a post card or letter today. St. Paul Hydraulic Hoist, Customer Service Dept., 36125 Main St., Wayne, Mich.

* *Pax-all* — is the registered trademark of St. Paul Hydraulic Hoist

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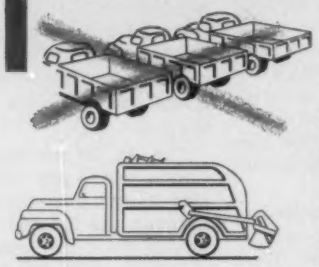
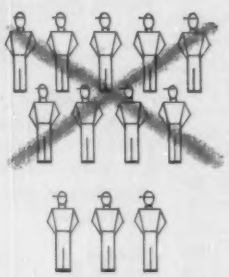
Keeps sanitation costs DOWN!

1 Lowest initial investment



One modern enclosed Pax-all replaces 2 to 3 unsightly open trucks . . . *saves up to 70% in equipment purchase cost alone.* You'll also find Pax-all costs up to 30% less than other modern compaction-type units . . . mounts on light, maneuverable 84" C/A chassis, which saves an additional $300 per unit over larger chassis needed for other loaders.

2 Lowest operating cost



Pax-all's automatic cram-packing enables crews to collect both garbage and trash at same time — with up to 66% *less labor,* 50% *fewer trips to dump* than open truck method. Lighter weight Pax-all chassis also assures *extra savings* in gasoline, tires, taxes, license, etc., which results in lower net cost per operating hour.

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Pax-all's *simplified* compacting mechanism . . . plus use of *only one hydraulic cylinder* for handling all loading, compacting and dumping operations . . . assures much lower maintenance cost than any other loader. Any good mechanic can easily service the Pax-all mechanism . . . no hydraulic specialist needed.

SP-PC-5

Water-Works Conference Highlights

(*Continued from page* 17)

being heavily seeded and flushed with water containing 25 ppm of chlorine. Furthermore, the water passing through the pipe created no health hazard as indicated by tests made on white rats who fed exclusively on this water.

Revenue Bond Limits

A WATER-WORKS revenue bond indebtedness is safe if its debt-service ratio is 1:5—a water works is heading for trouble if the ratio drops below 1:4. This was the advice of George W. Francis, consulting engineer, Saginaw, Mich., to the Management Division meeting. The debt-service ratio may be calculated as follows:

$$R = \frac{\textit{Total receipts} \text{ minus } \textit{operation and maintenance}}{\textit{Debt service} \text{ (principal and interest)}}$$

Mr. Francis recommended that laws governing revenue bonds include the right of popular referendum, based on a petition signed by 10% of the population and not restricted to taxpayers. The bonds should have a maximum term of 35 to 40 years and should always be sold by competitive bids.

Laws governing revenue-bond issues vary from state to state, according to D. L. Erickson, city engineer of Lincoln, Nebr. Two-thirds of the states do not require a popular vote; two-fifths place no legal limitation on the amount; three-fourths do not make the bonds a mortgage on the physical property of the utility; and three-fifths do not permit the city to use its own taxing power as security.

No Legal Hazards to Cloud Seeding

A CITY, hoping to help fill its water reservoirs by cloud seeding, should not fear legal hazards, according to an address to the conference's Water Resources Division by Dr. Irving P. Krick, president of the Water Resources Development Corporation, of Denver, Colo.

Cloud seeding, he explained, does not "make" rain. It only increases the fall-out from passing clouds. Licensing laws to insure high standards, avoid overlap, record pertinent data have already been enacted in Colorado, Wyoming, Arizona, California, Oregon, and South Dakota. Utah legislation enables county commissioners to levy assessments to cover the cost of seeding.

Sea-Water Regeneration Is a Money Saver

SEACOASTAL CITIES using water softeners that employ cation exchangers will save money if they replace purchased salt with sea water to regenerate the softeners. According to Eskel Nordell, of the Permutit Company, one municipality softened water containing 65 grains per gallon of hardness at a cost of $9 per 1,000,000 gallons with sea-water regeneration. It would have cost the city $155 using purchased salt. The initial costs generally are higher, but they are compensated by low operating costs.

Also in the field of water purification is the news that current chemical developments have provided much improved ion exchangers, according to J. M. Montgomery, consulting engineer of Pasadena, Calif. The new synthetic organic exchangers enjoy a life of 5 mgd per cubic foot as compared to 1 to 1½ mgd for the old synthetic exchangers. In addition, the new units have a salt consumption of 0.25 of a pound per kilogram of hardness removed as compared with 0.35 to 0.50 for the old ones.

Passaic Valley Thinks It's Worth A Try

TO MAKE its water more palatable to its customers, the Passaic Valley Water Commission is now treating the supply with sulphur dioxide, reports Richard E. Bonyun, general superintendent.

For several years, Mr. Bonyun has been using breakpoint chlorination to remove objectionable tastes and odors from the Passaic River water that is treated in the plant. However, this process has imparted a chlorinous taste and odor to the delivered water, particularly during cold weather. Although most of the water users do not find this objectionable, some have complained about the unpleasant taste of their tap water.

In an effort to please the complainants, he recently set up temporary facilities to dechlorinate the supply before it leaves the purification plant. The method of dechlorination is to apply sulphur dioxide just before filtration, but after the breakpoint chlorination has accomplished its purpose.

At present, Mr. Bonyun finds that about 4 pounds of sulphur dioxide, applied to 1,000,000 gallons of water for a concentration of 0.5 ppm, is sufficient. The chemical is supplied by the Tennessee Corporation in 1-ton containers. It is applied to the water through a Wallace & Tiernan hydraulic-type chlorinator.

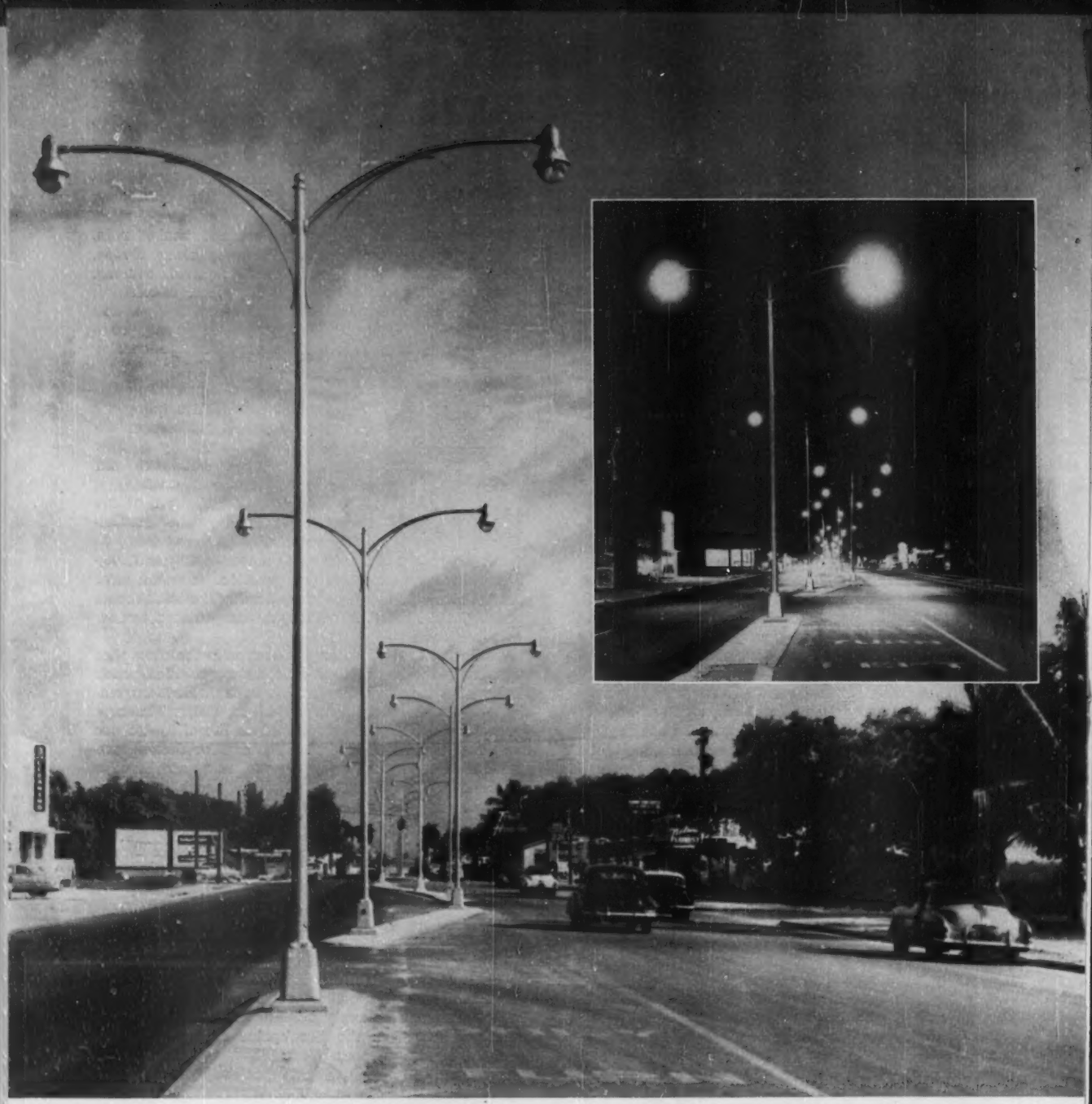
Reprints Available

TWO REFERENCE ARTICLES, reprinted from THE AMERICAN CITY, are now available for readers' files.

Incinerator Design, by William S. Foster, engineering editor of THE AMERICAN CITY, published in two parts in February and March 1954.—A comprehensive study of current practices in incinerator design.

Films for the Municipal Engineer, a compilation by the American Public Works Association, published in May 1954.—A film listing useful for in-service training. A supplementary listing appears on page 115 in this issue.

Reprints are available from the Editor, THE AMERICAN CITY, 470 Fourth Ave., New York 16, N. Y.



MONOTUBE POLES... GOOD FOR MIAMI NIGHT AND DAY.

Here on Miami, Florida's important 27th Avenue, Monotube poles are just as attractive as they are effective in contributing to the city's progressive street lighting modernization program.

These recently installed Monotubes, with transformer base and twin upsweep brackets, combine outstanding appearance, strength, low maintenance and complete conformance with recognized lighting practices. It's these features that appeal to economy-minded, safety-minded city and utility officials as well as benefiting motorists and pedestrians.

For complete-line catalogs or helpful planning service, write today to The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL

Monotube Lighting Poles

7100 East Carson Street, Long Beach, Calif.—or Rancho Esperanza.

Model Honor Farm for Long Beach Misdemeanants

By OFFICER WILLIAM J. MEYER
Director of Public Relations
Police Department
Long Beach, Calif.

RANCHO ESPERANZA is a dream come true, not only for the city officials of Long Beach, including Chief of Police William H. Dovey, but also for the up to 102 weary souls who can take a new lease on life there. Our new honor farm is the answer to the overcrowded conditions that existed for the last 20 years at the city jail.

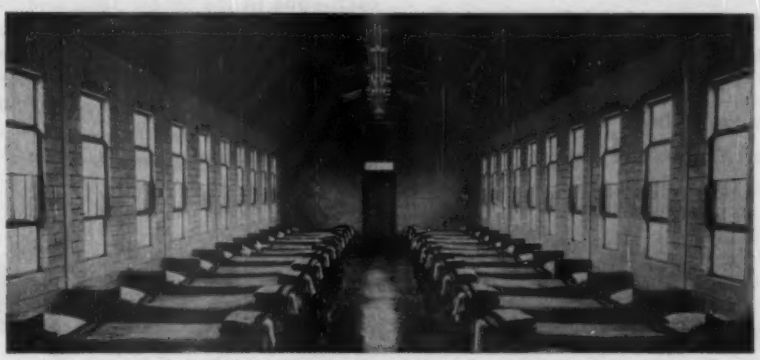
No morals, narcotics, or crime-of-violence cases are sent to the Rancho, and a prisoner who becomes a "special problem" is returned to the city jail. When each man arrives, he is given a shower and a complete change of clothing from shoes to hat.

Located at 7100 East Carson Street in the northeast section of the metropolitan area, Rancho Esperanza has 23 acres of fenced area on the 180-acre tract of city-owned land. Well-planned buildings of concrete-block construction provide economic operation with plenty of room for expansion. The five-wing dormitory in the center is flanked by a dining hall to the left, a chapel-recreation center to the right, and facing the street, a gate-house and checking-in-office. The "X" shaped wings of the dormitory branch out from a central room in which the controls of the institution are located; telephones, inter-com system, alarm system, and the duty officer's desk.

The air-conditioned sleeping quarters will accommodate 102 inmates and are "unique" inasmuch as the duty officer locks himself in the central control room at night and the inmates have the freedom of the dormitory. Furnishings consist of comfortable steel cots, steel lockers and small bedside foot lockers to hold personal effects, and a lavatory with wash and shower facilities that compare to the comforts of home.

The dining hall and kitchen unit, which can serve 120 simultaneously, is a housewife's dream of what her kitchen ought to be, with stainless steel fittings, garbage disposals, automatic vegetable scrubber, and a refrigerator big enough to hold a barbecued ox. Two civilian cooks, both veteran Navy men (retired) preside over a daily 4,000-calorie diet.

"Forty per cent of the inmates have never had a home before in their lives," declared Chief Dovey. Rancho Esperanza is a place where life has a meaning for men who need help—and get it.



One wing of the "X" shaped dormitory of the Honor Farm.

Who Supplied the Equipment

Ten-station tela-talk by Webster Electric Co., Racine, Wis.

Plumbing fixtures by American Radiator and Standard Sanitary Corp., Pittsburgh, Pa.

Wash fountains by Bradley Wash Fountain Co., Milwaukee, Wis.

Larco drinking fountains by Century Brass Works, Inc., Belleville, Ill.

Waste-King food-waste disposers by Given Manufacturing Co., Los Angeles, Calif.

Circuit breakers and switches to control fluorescent light by Square D Co., Detroit, Mich.

Ace in the hole

Let's face it—you may need it.

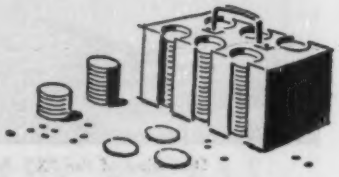
Times are changing . . . traffic is changing. One of the most important features to consider in selecting a parking meter is the ability of that meter to meet changing traffic needs without added expense.

Dual engineers have recognized that fact and are ready for those changes, often before they occur.

To meet your city's changing traffic needs, the Dual Automatic Parking Meter can be converted to any practical coin and time setting without the addition of a single part.

The changes are simple to make. Your own serviceman can make them on the site. Your meter operation can be synchronized with the most up-to-date traffic planning by minor adjustment and shift of a gear.

Before you buy, check the Dual Automatic—the "TRAFFIC-CONDITIONED" meter—available in Single and Dubl units with the same high quality, dependable mechanism used in each—one in the Single Dual and two in the Dubl Dual meter—and available in all practical coin and time combinations for on-street and off-street parking use. Write: *The Dual Parking Meter Company* (subsidiary of The Union Metal Manufacturing Co.), *Canton 2, O.*



Considerations In Selecting Street-Name Signs

THE PRIME REQUIREMENT of street-name signs is legibility. Next is an economy factor—how long the sign will remain legible without maintenance. Legibility for daytime signs is very simply obtained by using the largest practical letter size with the letters properly spaced on a large sign plate and with good color contrast between letters and background. Reflective sheetings will make the signs visible 24 hours a day.

Good practice dictates a plate 6 inches wide, 18 inches to 36 inches long (depending upon the length of the street name involved) bearing letters 3½ inches to 4 inches. Combinations of black and white offer the sharpest contrast.

Finishes and Materials

Porcelain enamel and baked enamel are the two most commonly used finishes on street-name signs—each having certain advantages and disadvantages. Principal types of finishes and materials used for street-name sign plates are:

Porcelain Enamel. — Inorganic minerals, chiefly silicon, fused into the base metal (usually a special carbon-free iron, but recently also aluminum). Porcelain will remain legible indefinitely if finish remains unmarred and signs are washed periodically. The currently used acid-resisting porcelain has increased the serviceability of porcelain signs, preventing etching from industrial acids. There remains, however, the factor of rustings and discoloration, where finish is chipped either by vandals, or from pressure at points of contact with mounting fixtures, and where bolts are used on signs that have no frames.

Baked Enamel.—Synthetic enamels, similar to automobile finishes are sprayed on the surface of the base metal (usually rust-resistant, zinc-coated steel, bonderized) and baked hard in an oven.

Reflective Sheeting. — A plastic sheeting material with millions of microscopic glass beads distributed uniformly throughout to assure an even reflection. It is applied to metal sign-backing by a pre-coated weatherproof adhesive on the back of the reflective sheeting. It is brightly visible at night despite heavy rain. Smooth-surface reflective sheeting partially cleans itself during rain resulting in minimum maintenance requirements. The best type of reflective sheeting for this purpose is wide-angle reflecting which reflects brightly regardless of the angle of approaching headlights. The legend of the sign can be applied by several methods, including silk-screen stencil, cut-out letters or roller coating on embossed signs. The material resists acid, weather, and shock due to violence.

Cast Aluminum. — This category is both a finish and a base metal. Baked enamel is often applied to the background and/or letters to increase contrast. Vinyl coatings resist weather and factory acids.

Vinyl Coatings. — These withstand changes of temperature on various metals and allow for expansion and contraction without cracking. They resist damage from flying stones.

Miscellaneous. — There are a few variations from the above finishes; however, none is in large-scale use. Such devices as transparent plastic plates with painted legends, mounted in front of street lamps; vertical concrete markers with legends either painted on or depressed into the concrete, etc., are occasionally employed.

Embossed or Flat Letters

Many hours have been spent and will be spent in debating over the relative merit of flat versus embossed lettered sign plates.

1. **Embossing strengthens a sign plate.**
2. **Embossing makes repainting of painted plates easier, and is mandatory on undamaged painted plates for economy of maintenance.**
3. **Embossed plates are not satisfactory where fixed plate length is a consideration.**
4. **The width of stroke of any embossed letter on a given plate is not as great as would be the stroke on a flat letter.**
5. **Both painted and porcelain plates can be satisfactorily produced with either plain or embossed letters.**
6. **A flat plate with legend produced by a stencil is said to have a clearer, sharper outline on the letters than embossed plate—although the latter is more legible due to the three-dimensional effect created by embossing.**

Street-name sign frames, which hold the plates strengthens the sign plates, and some feel that the attractiveness of the entire unit is increased. Frames that do not provide proper drainage or have pockets that will trap or collect dirt, leaves, and other debris should not be used.

Porcelain sign plates, held in frames not requiring mounting holes or bolts, are free to expand and con-

(*Continued on page* 137)

Beauty is as beauty does—

USS NATIONAL Tubular Steel Poles are slender, graceful, modern—a visual asset to any community. But their real beauty is in their practical function.

Because they are slender, yet strong, NATIONAL Steel Poles are not visual obstructions—create no traffic hazards. Because of their great strength they easily support the tightest trolley or trolley bus lines, and need not be spaced as close together as bulky, old-fashioned standards. As lighting poles, they are unexcelled.

Steel poles require very little maintenance—an occasional coat of paint keeps them like new. Smart looking NATIONAL Tubular Steel Poles are smart business. They serve the community practically, esthetically, and economically.

For further information, write for Bulletin Number 14 to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION
PITTSBURGH, PA.
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

USS NATIONAL *Tubular* STEEL POLES

UNITED STATES STEEL

52,745 PARK-O-METERS

PARKING METERS of OTHER MAKES have been TRADED IN ON

CONSIDER THIS

In 214 cities
52,745 Park-O-Meters have
been purchased to replace
meters of other makes.

60 TO 1 PREFERENCE

In only 3 cities have
Park-O-Meters been
traded in on other
makes. And in these
3 cities only 891 units
were replaced.

LOOK AGAIN!

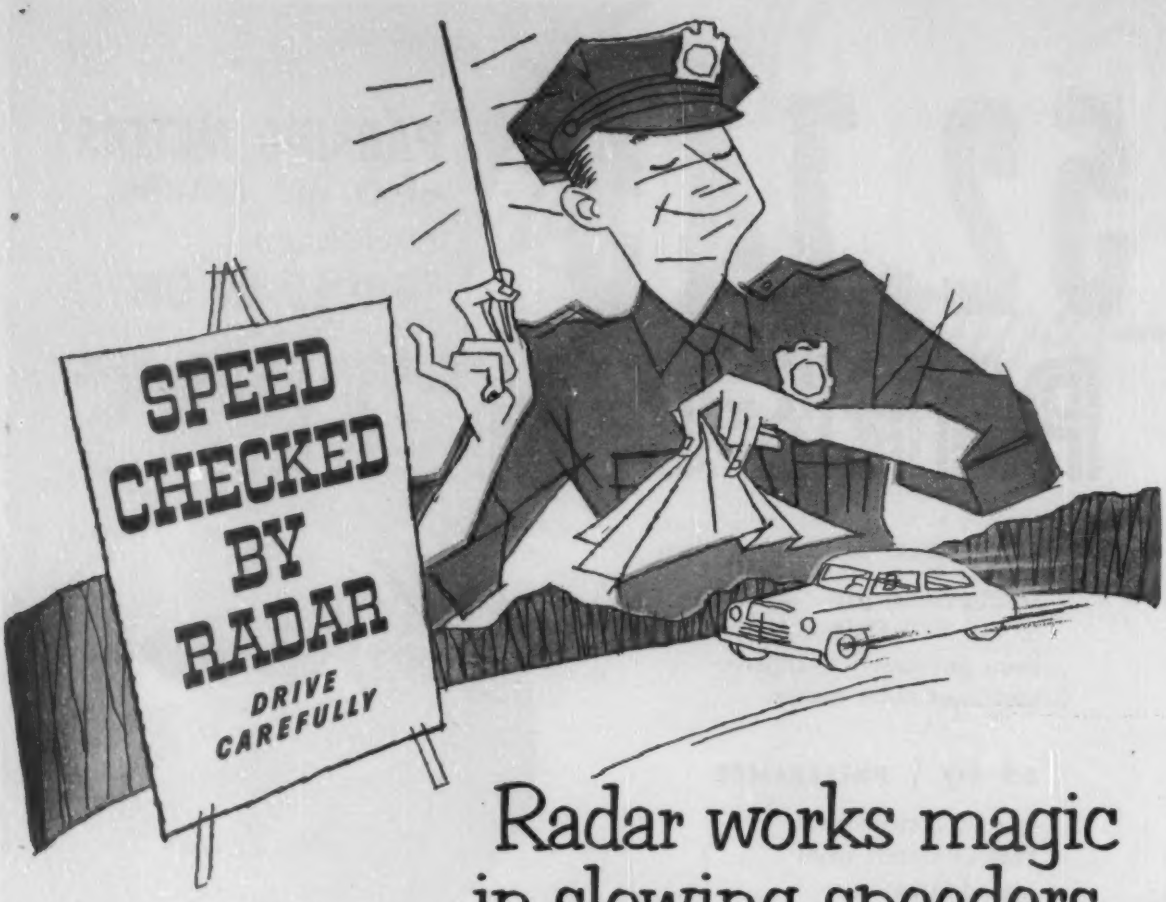
There must be a reason why
214 cities switched from other
makes to Park-O-Meter while
only 3 went the other way!

THIS IS PROOF OF OVERWHELMING PREFERENCE

Ask us to show you why . . .

Magee-Hale
PARK-O-METER COMPANY
Commercial Exchange Bldg.
OKLAHOMA CITY 2, OKLAHOMA

Created by the originators of Metered Parking



Radar works magic in slowing speeders...

The Electro-Matic® Model S-2 Radar Speed Meter operated by law enforcement officers provides a safe, positive means of detecting and controlling speeders. Violators soon discover the magic of radar equipment accurately indicates their excessive speed to the police-operator. Enforcement officials find many advantages in using the Speed Meter: Checks far more vehicles than a cruiser car • Eliminates hazards to pursuing officers and to motorists • Effective day and night and in all weather • Psychological deterrent to would-be speeders • Portable for spot checking • Ideal for investigating complaints of neighborhood speeding • Either one man or two-man usage of the Speed Meter can be employed. FOR FULL DETAILS WRITE FOR BULLETIN R-102.

AUTOMATIC SIGNAL
DIVISION
EASTERN INDUSTRIES, INC.
NORWALK • CONNECTICUT
In Canada, Northern Electric Co., Ltd., Belleville, Ontario

(*Continued from page* 133)

tract in response to changing temperatures without danger of chipping. The more elastic finish of baked enamel signs permits expansion and contraction caused by changing temperature, without marring or fracturing the finish.

The use of sign frames resists bending of the name plates by vandals. Therefore, frames prolong the life and utility of porcelain sign plates, but the useful life of the baked enamel plates is not extended.

Baked enamel sign plates in good condition, particularly those having embossed messages, can be refinished economically.

Fixtures or Mounting Brackets

Two types of fixtures are required: the criss-cross fixture for mounting on top of a 2-inch to 3-inch street-sign post; and a wing fixture for end mounting on existing utility poles.

The fixtures or mounting brackets should be made sturdy enough to keep the sign erect and in proper position on the sign post, as well as to withstand the elements, and weight of pranksters who may climb on, or swing, from them.

All signs should be erected a minimum of 8 feet from the ground to help prevent vandalism.

Courteous Severity Reduces Injury Accidents in Eau Claire

SINCE NO POLICE ORGANIZATION can apprehend all violators of all laws, their efforts must be concentrated against those violators who are causing the greatest consternation or physical damage to a constituency. That's been the policy of the Police Department in the City of Eau Claire, Wis., for the last 45 months, particularly in the field of traffic, with the following decrease in traffic accidents, especially in the personal injury category.

	1949	1950	1951	1952	Average 1949-52	1953	1953
All accidents	720	889	929	885	856	832	—3%
Personal injury ..	99	109	98	90	99	58	—42%

Selective Enforcement

We have studied every accident to ascertain its true cause. Violations of the law are by far the greatest cause of accidents in Eau Claire. Another, is that many good drivers drive while preoccupied or entirely ignorant of existing regulations. It was decided to institute a system of recorded warnings to be given for the minor types of moving violations which were contributing causes of accidents.

Aimed at the Slick Drivers

It is generally acknowledged that there is a certain percentage of drivers who are violation prone. Those who constantly cheat by a few miles per hour or who "slide" through a stop sign, etc. These drivers are dangerous but intelligent enough to realize that police officers are human and are prone to allow slight violations to go unreprimanded. It was this group, together with the careless drivers, which was thought of when establishing the rate of arrest for those who are repeatedly warned.

If a driver is warned three times within a six-month period he is arrested on a warrant charging him with the violation noted on the most recent warning. The prior warnings are presented in evidence to corroborate the contention that the individual involved is either oblivious to his responsibilities as a driver or a cheat.

During 1952, there were 2,582 such warnings issued and 6,376 during 1953. It is significant that although our number of arrests has decreased by 10%, the rate of personal injury accidents has decreased by 42%.

BERNARD L. GARMIRE
Chief of Police
Eau Claire, Wis.

Omaha's Street-Name Upkeep Costs 65 Cents Per Sign

SEVEN THOUSAND DOLLARS a year keeps Omaha's street-name signs in top shape for this city of 251,000. That cost includes salaries, materials, and use of a pickup truck.

Omaha street-name signs can go 3½ years before they need repainting. Bent signs are straightened; old paint is removed with a caustic bath; a new white enamel base is sprayed on. Stencils and silk screens for putting on the black lettering are homemade.

Each sign names both streets which intersect. The street which parallels the sign is in big letters; the intersecting street is in smaller letters or may be indicated by the number of blocks it is north or south of Dodge Street, the city's main thoroughfare which is numbered zero.

The clear complete marking system means dollars to Omaha business. Postal authorities and express companies say Omaha is one of the best marked cities of its size.

FRANCIS CHURCH
Department of Public Works
Omaha, Nebr.

Francis Church and the signs he maintains.

STOP WATCH SHOWS BEELINE QUICK-DRY METHOD

Flag man diverts traffic for striping machine.

Striper lays line; cones are set out at same time.

Just 15 minutes later lines are dry . . . cones picked up . . . street open to traffic!

Striping starts . . . traffic rolls . . . in just 15 minutes with BEELINE BRAND REFLECTIVE STRIPING COMPOUND

More and more cities are turning to multiple-lane marking to get increased capacity from existing streets. And the striping they use is quick-drying "Beeline." Why? Because "Beeline" Compound reduces the length of time traffic is disrupted while paint is applied.

QUICK DRYING—RUGGED DURABILITY

"Beeline" is pre-mixed glass-beads-in-paint. In general, drying time *is just 15 minutes* in normal weather. And "Beeline" is applied with standard equipment . . . goes on smoothly and easily for solid coverage in one application. And "Beeline" *lasts!* Reflecting glass beads are *all through* the compound (not just on the surface)—effectively absorb the wear of traffic . . . keep paint film in better condition much longer.

FULLY REFLECTORIZED!

Outlying neighborhoods, where nighttime illumination is lower, and rural sections especially need the added safety of "Beeline's" efficient reflectorization. And, because the reflecting beads in "Beeline" are fully pre-mixed throughout the compound, "Beeline" reflectorization lasts for the life of the stripe!

TEST "BEELINE" ON *YOUR* STREETS!

Try just 100 gallons—only $385 delivered—enough for 10 miles of striping. Prove to yourself that "Beeline" is the perfect striping compound for today's traffic needs!

You can get "Beeline" from your regular Traffic Sign dealer.

PREMIXED BEELINE BRAND

REFLECTIVE STRIPING COMPOUND

3M COMPANY

"Beeline" is a registered trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. General Export: 122 E. 42nd Street, New York 17 N.Y. In Canada: London, Ontario, Canada.

Chicago Should Strain Its Traffic

FOR IMMEDIATE AND LONG-RANGE IMPROVEMENTS in Chicago's mass transit, a comprehensive 13-point program has been offered by Ralph Budd, former chairman of the Chicago Transit Board, for cooperative community discussion and action.

For improving surface transportation, both by mass transit and private automobile, seven points are suggested:

1. **Enforce existing regulations.**
2. **More emphasis on improper and illegal parking.**
3. **Segregate street traffic by special traffic lanes in the central business districts for the exclusive use of transit vehicles.**
4. **Establish parking facilities conveniently accessible to local transit:**
   - **(a) on the periphery of the central business district**
   - **(b) adjacent to outlying rapid-transit stations**
   - **(c) at locations that can be expeditiously served by special buses to and from outlying rapid-transit stations.**
5. **Limit truck loading and unloading at curbside.**
6. **Limit truck use of heavily traveled streets in the central business district and other congested areas.**
7. **Limit taxicab cruising in congested areas.**

For improvement of off-street rapid transit, the long-range part of the program, the following points are suggested:

1. **Provision of rapid-transit facilities, either rail or bus, in the expressways of the city's official superhighway program—the West (now under construction), Northwest, South, Southeast, Southwest, Crosstown, and North (future extension) superhighways.**
2. **Construction of additional two-track subways in the central business district to permit removal of the present "L" Loop.**
3. **Construction of east-west subways in Washington and Jackson in the Loop for surface mass-transit vehicles.**

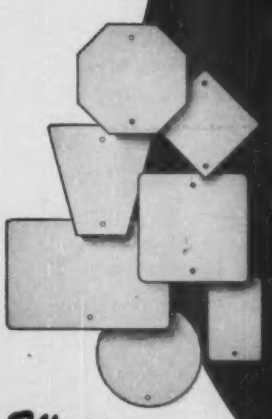
The private automobile and the favoritism accorded it is blamed for the crippling handicaps under which mass transit is endeavoring to operate, not only in Chicago but throughout the nation. Multilane highways, daily disgorging thousands of automobiles in the central area of the city, are not the solution to our traffic problem. Actually, they complicate and confuse the problem.

Controlling and correcting the situation—traffic jammed streets, use of street space for parking, traffic accidents and fatalities—is a major municipal headache.

With regard to the construction now under way in the central business district of eight municipally owned parking garages, costing an estimated $25,000,000, a new traffic problem is being injected into an already awesomely complicated situation: How to keep through traffic moving in the rush hours, including local transit, while these traffic-storage facilities are being loaded and emptied.

NSE TRAFFIC SIGN BLANKS

STEEL AND ALUMINUM



FOR THE ECONOMY MINDED CITY—NSE offers highest quality traffic sign blanks at amazingly low costs. All types steel and aluminum blanks, available for IMMEDIATE SHIPMENT FROM STOCK!

Steel blanks, flat or embossed, in all popular gauges can be furnished either plain, bonderized or finished with two coats highest quality baked enamel. Also furnished reflectorized with SCOTCHLITE sheeting or PRISMO "Rain-Pruf" coating. Aluminum blanks, alloy 61ST6 in .081 ar .064 thickness can be furnished plain, alodized for painting, or vapor-degreased and phosphoric acid etched for reflective sheeting application.

All sign blanks are manufactured in strict conformance with the standards set forth in the MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. All blanks are die cut with steel dies to insure accuracy to 1/64" for perfect silk screen registration. All corners rounded to 1-1/2" radii and 3/8" holes punched to standard specifications.

May We Quote on Your Requirements Today?

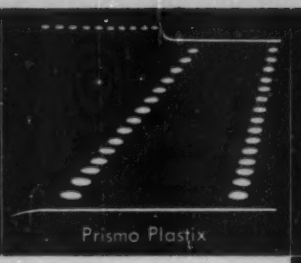
Write FOR COMPLETE DESCRIPTIVE BROCHURE — ADDRESS DEPT. ACM.

NATIONAL *Safety* ENGINEERS, Inc.

GENERAL OFFICE & PLANT: BIRMINGHAM 1, ALA.

Prismo Super LifeLine

Prismo Quick-Drying Municipal LifeLine



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AMERICA'S *First Family* in HIGHWAY · SAFETY

Here's a way to solve your every marking problem! See Prismo, the first and finest name in the reflective marking field! Prismo can offer you a **complete family** of reflectorizing products for applying "safety" to roads, signs or obstructions on highways, city streets, at industrial installations and at railroad and aeronautical installations.

Regardless of your marking problems . . . or their locations . . . Prismo materials are your answer to brilliant, all-weather, all-hour reflectivity at lowest cost.

From planning to actual application by Prismo's Contracting Service, avail yourself of the very best . . . use Prismo, America's First Family for reflective safety. Write TODAY for full details on Prismo products and services.

PRISMO SAFETY CORPORATION

HUNTINGDON • PENNSYLVANIA

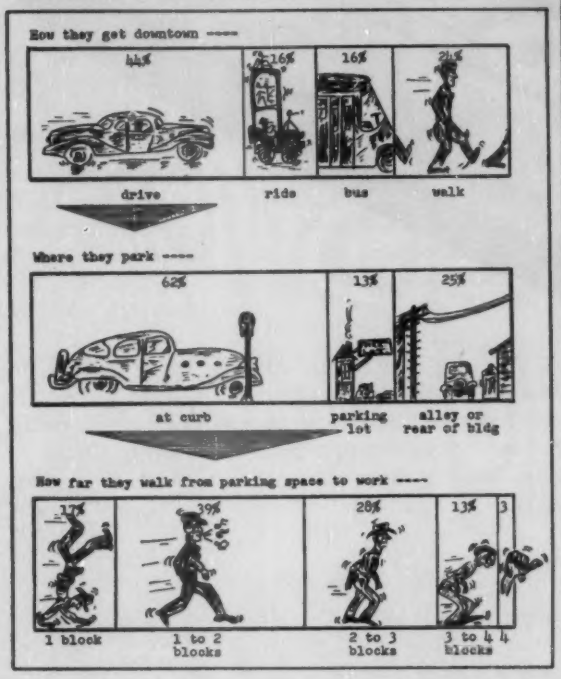
529

THE WORLD'S LARGEST SUPPLIER OF REFLECTIVE MARKING MATERIALS

Anchorage, Alaska Looks at Its Parking

THE PARKER is no unusual problem—he is everywhere. The problem is where to provide space for him to park. The City of Anchorage, Alaska, has made a very interesting study of parking.

The parker himself is quickly classified by the accompanying drawings, which show how he gets downtown, where he now parks, and that a two-block walk from his parked car becomes painful.



There is a growing need for more space for shoppers. This can be met, to a considerable extent, by shortening the time now allowed by the meters. The long-time parking situation is covered in the report as follows:

Long-term parking demand is generated almost exclusively by persons working in the business district. Included in this group are those who park during the whole work day, as well as drivers who park their vehicles for two four-hour periods.

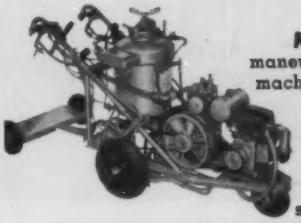
A business-by-business, office-by-office survey of the business district showed that there are 3,715 people employed in the downtown area. Total number of all-day parking spaces needed to satisfy the demand created by employees in the business district is 1,635.

The importance of meeting this demand cannot be overstressed. One thousand fourteen of the 1,635 all-day parkers leave their cars at the curb within or adjacent to the downtown area. Each vehicle left at the curb from 8 a.m. to 5 p.m. prevents nine drivers from parking there—nine drivers who may have come to bring more business to the downtown area.

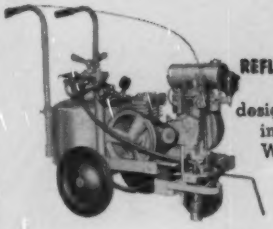
The survey showed that 540 drivers now walk two or more blocks between their parking space and their place of employment. The provision of 750 spaces for all-day parkers is a basic goal in solving the parking problem. These spaces should be available to the public at no more than 50 cents per day and preferably less. Too high parking cost will force people to look for free or cheaper spaces further away.

In a jam with your striping schedule?

Get a Wald REFLECTO-LINER



MODEL 16 Here's a highly maneuverable, double-line striping machine that lets you keep ahead of the busiest of schedules. Designed to handle plain or reflective marking materials in single or double stripes, 2" to 6" wide, with variable spacing as desired. Operated by one man in heavy traffic, incorporates all easy cleaning aids. The perfect machine for fast, efficient striping.



REFLECTO-LINER, Jr. The budget-class, hand-propelled striper that was designed to meet the requirements of industry and small municipalities. Works fast, highly maneuverable. Lays 2" to 4" lines of plain or reflective paints. Economy and brilliant performance are the features of this outstanding machine.

Write today for your copy of Wald's general catalog W-10.

WALD INDUSTRIES, Inc.

HUNTINGDON, PENNSYLVANIA

NORTH—Shakopee, Minnesota praised the performance of its Form 206 luminaires. The new lights provide superior illumination even in sub-zero weather.

EAST—Central Maine Power Co. accomplished their working objective of providing better street lighting economically by installing Form 206 fluorescent lights at Auburn, Maine.

NEW G-E FLUORESCENT STREET LIGHTS GAIN NATIONWIDE ACCEPTANCE

Are fluorescent street lights practical? Utility and municipal officials who have installed G-E Form 206 fluorescent luminaires are best qualified to give the answer. Their actual field experience, in all parts of the country, is summarized in the following questions and answers.

WHY USE FLUORESCENT STREET LIGHTING?

Fluorescent street lighting provides better visibility and a more even light distribution than the best engineered systems of either filament or mercury lamps. The low brightness of the light source reduces the glare and eye strain that accompanies other types of street lighting.

IS VISIBILITY IMPROVED?

Yes. Many lighting experts believe that fluorescent street lighting increases actual visibility by about one-third. Thus, a 1.25 footcandle level from a Form 206 fluorescent luminaire seems to provide the same visibility as a 1.7 footcandle level from filament or mercury luminaires.

IS THE COLOR OF THE LIGHT PLEASANT?

Yes. The whiter light furnished by the fluorescent lamps does not distort the familiar coloring of objects and people. Businessmen find that shoppers even come from outside usual trading areas to shop under the comfortable light from the fluorescent luminaires.

IS THE SIZE OF THE LUMINAIRE A PROBLEM?

No. The Form 206 luminaire is only slightly over six feet long and the distinctive size and shape add functional beauty to the appearance of any street or roadway. No guys or trusses are required to support the luminaire even in high winds.

WHAT MAINTENANCE IS REQUIRED?

Maintenance is reduced! The fluorescent lamps used in the Form 206 have an average lamp life of 7500 hours, or about two years of street-lighting operation. The hinged plastic globe is shatterproof and is tightly sealed to prevent dirt or insects entering the unit. Sun, rain, heat, cold, or aging do not adversely affect the plastic globe or the light output.

HOW DO COSTS COMPARE?

When over-all lighting costs are computed on an equivalent visibility basis, G-E Form 206 fluorescent luminaires cost less than any other comparable system of filament or color-improved mercury. Although equipment and amortization costs are somewhat higher, installation costs are comparable, and operating costs are generally lower.

GET MORE INFORMATION about this outstanding G-E fluorescent luminaire, the Form 206. Contact your nearest G-E Apparatus Sales Office, or write Section 452-139, General Electric Company, Schenectady 5, N. Y.

SOUTH—Statesville, North Carolina installed 104 Form 206 fluorescent street lights and was enthusiastic about their visual comfort, economy, and modern appearance.

WEST—Virtually glareless illumination and an even light pattern resulted when Seattle installed Form 206 luminaires to light the second level of this new Alaskan Way viaduct.

GENERAL ELECTRIC

JOSLYN JUNIOR LUMINAIRES

FOR IMPROVED RESIDENTIAL STREET LIGHTING

Now available in all Standard I. E. S. Light Distributions

- Wedge-band or automatic latching glassware.
- Reflector Glassware Assembly attaches directly to Style 30 and 60 Aluminum heads (Style 60 illustrated), for multiple circuits.
- Adaptable to any Joslyn Style 90 or Style 50 aluminum head—or any Joslyn porcelain head, for series or multiple circuits.
- The Reflector-glassware of the 4-way Type II Luminaire may be rotated for correct alignment with intersection.
- Ask your Joslyn Sales Representative for further details.
- *For complete catalog information, see pages 331-338 of the new Joslyn #17 Catalog.*

AVAILABLE FOR

I. E. S. Types I, II, III, 4 way II, IV and V Light Distributions with 1000 or 2500 Lumen Lamps

JOSLYN MFG. AND SUPPLY CO.
Executive Offices: 20 N. Wacker Drive, Chicago 6, Ill.

JOSLYN

The OV-60 luminaires on the "new look" Boardwalk at Atlantic City are attached to new concrete brackets on pre-tensioned standards made by the American Concrete Corporation of Chicago.

World's Most Powerful Street Lights

Glamorize Atlantic City's Boardwalk

By W. EARLE HAWKINS,
Senior Engineer
Atlantic City Electric Co.
Atlantic City, N. J.

and

J. HOWARD WENNER
Street Lighting Engineer
Westinghouse Electric Corp.
Philadelphia, Pa.

THE WORLD-FAMOUS Atlantic City, N. J., boardwalk will be still more brilliant this summer under its unique installation of 33,000-lumen fluorescent mercury lights, which were dedicated early this year. The "firsts" are a new-size light source —in a new street-lighting luminaire— on a new design standard—and operated from a new ballast. These are the natural outgrowth of the eight basic project requirements:

1. Average *maintained* illumination of 2.0 foot-candles minimum—which at once implied a source of at least 30,000 lumens initial output.

2. Wider spacing of standards than at present—to lessen "picket fence" effect.

3. In-built provision for future increase to 3-plus foot-candles without major changes to the system.

4. Illumination of color suited to the application—a wide pedestrian promenade with extraneous (color-correcting) light available, for the most part, only from the side opposite the luminaires.

5. Rugged, noncorrosive equipment — for minimum maintenance in spite of continuous exposure to salt atmosphere.

6. Equipment of low windage — to withstand storms of gale, or even hurricane, force.

7. A finished system epitomizing 75 years of progress in the lighting art.

8. All this at comparable first cost.

The logical choice was fluorescent mercury since no other source affords such an abundance of light, of agreeable color, with comparable economy. Here, as in any problem of general illumination, outdoor or indoor, best economy results from using a *minimum* number of units of the *maximum* size consistent with correct application techniques.

The Luminaire Evaluation Chart shows, at a glance, the final point rating of all equipment considered. As an interesting sidelight, and a concrete example of the soundness of such evaluation, the installation has already withstood a gale of 78 mph (Point 6).

Uniform Distribution

The new luminaires are both characterized by wide ASA-IES type IV distribution with maximum vertical candlepower of relatively low magnitudes. The resultant visual comfort must be seen to be fully appreciated. Uniformity of illumination, too, is little short of amazing. Photometric measurements along the centerline of the 60-foot walk show no measurable variation. Greatly increased illumination, both horizontal and vertical, are distinct aids to firemen and police. Foot patrolmen can actually see in-

(*Continued on page* 149)

Versatile Tractor Shovel Disposes of Garbage, Handles Other Jobs for Evansville, Wis.

by **BRADEN E. WOLFF**
Superintendent of Streets, Evansville, Wis.

The HD-5G Tractor Shovel with 1-yd. bucket spreads refuse in old gravel pit, which was previously a dangerous menace.

Like thousands of other towns, we must buy equipment that can handle a wide range of jobs, because we operate on a limited budget and often cannot justify the purchase of a machine just to handle a certain job. The equipment versatility we seek is typified by an Allis-Chalmers HD-5G, 1-yd. Tractor Shovel, which we bought primarily for garbage and rubbish disposal but which we use for other jobs, too.

The Sanitary Landfill system of disposal is used in our town because of its economy, safety and benefit in recovering otherwise useless land. Refuse is picked up by a 10-yd. garbage truck and an open truck, and is hauled to an old gravel pit covering about three acres on the edge of town. The tractor shovel spreads the material, compacts it by traveling over it and then covers the refuse with dirt or sand. The landfill can be built up in successive layers until the level is the same as that of surrounding land. Cover material consists of street sweepings, discarded foundry sand, and overburden from a sand pit adjacent to the landfill.

It is estimated the old pit now being used will provide disposal capacity for three or four years. When filled, this one-time menace will be used for a playground. There are other pits nearby that also will be put to such double use — first a means of refuse disposal, then a site for healthful playgrounds for the community. Needless to say, citizens and town officials are very happy with the new system.

We find that our collection equipment can handle Sanitary Landfill operations efficiently in a total of two days a week. The remainder of the time, the tractor shovel is available for sidewalk and street work. It is used for both construction and maintenance, as well as stockpiling, loading — in fact, any jobs there are to be done. It either travels from job to job by its own power or is hauled on a trailer behind one of the trucks.

★ ★ ★

Counties, cities and towns throughout the country are finding Allis-Chalmers Tractor Shovels the ideal machines for all-round work. They are always busy because they do so many jobs so well. Usefulness is further widened by a variety of quick-change attachments for the HD-5G, including 2-yd. bucket for snow, coal and other light materials; trench-hoe for digging trenches and foundations; blades for dozing; and rear-mounted scarifier for breaking up old surfacing and for more efficient excavating.

See the HD-5G and the three larger size tractor shovels at your Allis-Chalmers dealer's. Let him show what they can do on *your* job.

After packing material well with its 16,200 lb. of weight, the tractor shovel carries fill from nearby pile and spreads it to completely cover refuse.

Portion of pit in foreground has already been filled to level of surrounding land. Pit in background is yet to be filled. Land will be used as a playground as it is filled in.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

"Lower the Broom" on High Sweeping Costs...

Cleaner sweeps on all types of terrain—high-crown roads, inverted gutters, airports, freeways, etc.

Four-wheel hydraulic brakes for maximum safety. Cab protects against overhanging limbs. Greater visibility for driver.

Sweep more gutter miles per day . . . Maneuver easily around parked cars.

with

MOBIL-SWEEPER

Most For Your Money at Budget Time: Mobil-Sweeper

MANY COMMUNITIES are reporting three times the gutter miles at one-half the cost with MOBIL-SWEEPER—the *modern* machine that sweeps, sprays and carries the full load direct to the dump. Pick-up crews and expensive loading equipment are thus eliminated; more miles of streets are swept cleaner at lower cost.

MOBIL-SWEEPER MAKES STREET SWEEPING A ONE-MAN JOB. This rugged, compact machine likes "tough going"... thrives on tortuous terrain. One man sweeps deep, wide gutters, sharp curb returns, steep hills, under low-hanging trees or other obstructions with ease. Right and left gutter brooms sweep dirt, bottles, cans, other trash into the path of the big full-floating pickup broom—leaving a clean 10-ft. swath (7'3" with single broom) behind.

Then, when the 2½ cu. yd. dirt hopper is loaded, the MOBIL-SWEEPER pops off to the dump—at maximum traffic speeds. Less time is wasted "dead-heading" to and from the dump . . . more refuse is picked up and disposed of with fewer stops.

DEPENDABLE OPERATION—MAXIMUM SAFETY. Mobil-Sweeper is teamed with a modifed International Harvester chassis and the famed Silver Diamond valve-in-head engine for better performance, fewer repairs. Four-wheel hydraulic brakes protect pedestrians; a truck-style "Safety Top" cab protects the operator, gives him the visibility—and safety—he needs to do the cleaning job.

For complete information on how Mobil-Sweeper solves your sweeping problems—without creating budget problems . . .

Write for the facts!

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MOBIL-SWEEPER

DIVISION OF THE CONVEYOR CO. • 3260 E. Slauson Avenue, Los Angeles 58, California

THE CONVEYOR CO. 3260 E. Slauson Ave., Los Angeles 58, Calif. AC-01

Gentlemen: Please send catalog, with complete details and specifications for the Mobil-Sweeper.

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TITLE_____

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COUNTY_____

CITY_____

STATE_____

Roadways and parking areas

Hundreds of feet of ramp

L-M Can Light Your Airport . . . Roadways, Ramps and Runways

L-M provides complete equipment to light entrance drives, parking areas, ramps, taxiways, and runways. Equipment includes luminaires, marker lights, brackets and poles, transformers and control equipment.

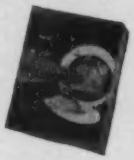
Runway units range from the small 15-watt "Flying Farmer" units to L-M's famous 200,000 beam candlepower Thermal Beam, the high-intensity runway light with single voltage control for both intensity and beam direction.

A new fluorescent unit has been developed especially for loading ramps that puts adequate light on ramps and aircraft without glare to the pilot. For roadways and parking areas L-M offers a complete line of equipment.

In addition, L-M offers complete lighting application engineering service to help you plan economical, efficient installations.

Get Complete Information

Ask the L-M Field Engineer for information and literature about L-M equipment and engineering service; or write Lighting Division, Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).



"Thermal Beam" and "Ovalite" are Line Material Company trademarks.

LINE MATERIAL

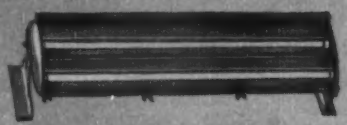
176

Airport Lighting

Runways and taxiways

L-M's Spherolite©, well-known incandescent lamp luminaire for street and area lighting, offered in a wide variety of light distribution patterns.

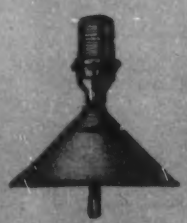
L-M's Ovalite, high-efficient mercury vapor lighting unit, for roadways and parking areas.



L-M's new high-efficiency fluorescent unit for ramp or road and parking area lighting. For ramp lighting the uni-directional two-lamp unit is recommended, while for roadway lighting the bi-directional four-lamp unit is generally used.

Thermal Beam, L-M's highest-intensity runway light, with beam direction and intensity regulated by a single control. Meets CAA Spec. L-818. Only 14" above ground level to give ample clearance for low-wing jet ships.

L-M Fixed Focus high-intensity runway light, bi-directional type, with specially designed optical system; approved under CAA Spec. L-819.



L-M's Medium Intensity runway light, for runways at smaller airports, and for taxiways at large and small fields. CAA Spec. L-802 and L-822.

L-M's new "Flying Farmer" unit for private landing strips, sod runways, Class 1 airports. Complete package for 2000-ft. runway, only $600!

L-M can also furnish:
Obstruction Lights
Code Beacons
Rotating Beacons
Wind Cone Assemblies
Wind Tees
And other auxiliary lighting equipment

(*Continued from page* 145)

terior areas of many stores and shops.

Several special factors governed the arrangement and spacing of luminaires:

1. A one-side arrangement (ocean side) was mandatory since standards support railing, and interference with valuable building fronts could not be tolerated. An important plus result, however, is the back lighting of the entire beach, which aids policing.

2. Block lengths are, in general, close to 400 feet and because of the necessity for street signs, it was required that a luminaire be located at each street end.

3. Distance between centerlines of intersecting streets was divided as equally as possible; therefore, the only deviations being those required by the various abutting piers, pavilions, and comfort stations.

New Developments in Tandem

With the desired intensity (Point 1) and an 11% wider spacing (Point 2) established for the very heavy traffic area, the need for a lamp with a lumen rating of 30,000 to 35,000 became evident, and resulted in development of the 700-watt type B-H18 (fluorescent mercury) lamp with an initial rating of 33,000 lumens. (Clear equivalent is the A-H18 mercury, of 35,000 initial lumens). Development of an H-18 multiple 113/120/127 volt ballast took place at the same time, as did that of the OV-60 luminaire, a "big brother" to the very familiar and popular OV-20 which made its advent in 1946.

Like the OV-20, which accommodates 250-watt H-5 (11,000 lumens) and 400-watt H-1 (15,000, 19,000, and 20,000-lumen mercury, fluorescent mercury, and mercury respectively) sources, the OV-60 accommodates not only the H-18 lamps but the 50,000 lumen (B-H15 fluorescent mercury) and 53,000 lumen (A-H15 mercury) 1,000-watt sizes as well. Thus, the main Boardwalk lighting level can be increased 40% — to 3 foot-candles (Point 3)—by a simple change to the B-H15 lamp and ballast at any time.

Hinging glassware, cast housing, and completely noncorrosive construction of the luminaires make for minimum maintenance and maximum salt resistance (Point 5), as do the superlative features of the newly developed "Hollowspun" concrete standards, which will require no maintenance in spite of the severe service conditions.

Air-entrained cement seals the salt out while the steel reinforcing wires, which are hot-dipped galvanized, gives final insurance against rust from within. Shafts are of the new "pre-stressed" construction for maximum density, flexibility, and strength. The concrete brackets not only harmonize well, but are maintenance free.

The only exposed metal parts of the standard assemblies are the ¾-inch-thick cast-steel spider base, the bronze inserts (for railing and street sign attachments), and the heavy wall hot-dip galvanized 2-inch slip-fitter. A festoon outlet, at a height of 17 feet, provides for decorative lighting.

Competent observers have termed the color rendition (Point 4) on the Boardwalk excellent. Addition to the mercury lamp of a phosphor magnesium fluorogermanate, which fluoresces bright red under the abundant ultra-violet of the mercury arc, results in fluorescent mercury, with color balance.

LUMINAIRE EVALUATION CHART

Luminaire (Fixture with Lamp)	Project Requirements								Final Rating
	(1) "2.0 fc Maintained"	(2) "Wider Spacing"	(3) "Expansion"	(4) "Suitable Color"	(5) "Maintenance"	(6) "Windage"	(7) "Progress"	(8) "Comparable Cost"	
Incandescent	No*	No*	No	Yes	Yes	Yes	No	No*	37½%
Sodium Vapor	No*	No*	No	No	Yes†	Yes†	No	No*	25%
Fluorescent	No*	No*	No	Yes	No*	No	Yes	No	25%
Mercury Vapor	Yes	Yes	Yes	No	Yes	Yes	No	Yes	75%
Fluorescent Mercury	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100%

* *Either lamp or fixture not available, feasible, or economical.*
† *If closed type.*
***Note:** In ordinary business and traffic street lighting, higher lamp efficiency, higher utilization and more favorable cost of "straight" mercury vapor would normally outweigh requirements # 4 and # 7.*

SUMMARY OF INSTALLATION DATA

Traffic Volume (Pedestrian Only)	The Old (by ASA-IES Types)		The New (by Avenue Locations)		
	Type IV Very Heavy and Heavy	Type V Heavy & Medium	New Jersey to Bellevue Very Heavy	Bellevue to Morris Heavy	New Jersey to Massachusetts Medium
Width of Walk (Feet)	40 & 60	60	60	40	60
Luminaire	Pendant	Post-Top	OV60-IV	*OV20-II	*OV20-II
Lamp	575 W	575 W	B-H18	J-HI	J-HI
Rated Initial Output (Lumens)	10,000	10,000	33,000	19,000	19,000
Mean Lumens Over Life	9,160	9,160	26,400	15,000	15,000
Luminaire Depreciation Factor	.60	.80	**.90	**.90	**.90
Height to Light Center (Feet)	18.5	19	30	24	24
Overhang (Feet)	1.5	None	4.5	3	3
Linear Distance (Feet)	†6,900	2,000	†6,480	1,520	900
No. of Luminaires	105	35	88	20	11
Average Spacing (Feet)	65.5	57	73.6	76	82
Total Utilization Factor	.38	.17	.39	.44	.475
Horizontal Avg. Maintained Footcandles	.53	.36	2.1	1.95	1.3
Average Initial Footcandles	....	....	2.92	2.75	1.84

* *Type IV distribution results when J-HI lamp is used.*
** *Based on 3-year experience with OV20-E-HI installation in less favorable atmospheric situation.*
† *Not including areas requiring special treatment: viz, Steel Pier, Central Pier, Convention Hall.*

A Mile of Modern Street Lighting

A NEW SYSTEM of modern street lighting, including incandescent and mercury luminaires, has been erected along a mile of winding and straight roadway at General Electric's Nela Park, in Cleveland, Ohio. Thirty-five fluorescent luminaires, 14 incandescent types, and 8 mercury-lamp units replace a system of ornamental post-top lanterns in use at Nela Park since 1920. While providing good roadway lighting for auto and pedestrian traffic, the system also serves as an effective demonstration of modern street-lighting practice for city officials and representatives of electric utilities.

The fluorescent luminaires are identical with those employed in the numerous fluorescent street-lighting systems which have made their appearance in the United States. Housing four 100-watt Rapid Start lamps, the 6-foot luminaires when mounted 25 feet high and spaced 100 feet apart above the roadway deliver a

uniform level of light on the roadway.

The luminaires at Nela Park are mounted on Union Metal fluted steel poles, set in concrete foundations. The system requires no guys or trusses to support the new luminaires in the event of high winds.

Incandescent Luminaires

Where minimum pedestrian traffic is encountered, the new Nela Park lighting system employs modern pendent luminaires. Each unit uses a 6,000-lumen lamp in a prismatic Holophane refractor and is mounted 25 feet high on a Union Metal fluted steel pole featuring a 4-foot double-curve plain bracket arm.

Mercury Luminaires

Two mercury-vapor units have been erected at the entrance to the Nela camp grounds. Six others are stationed along a roadway leading past the parking lot. All are mounted on G-E round aluminum poles with the luminaires suspended 30 feet above the roadway. These G-E Form 109 luminaires employ 400-watt mercury lamps. For visual comparisons, some of the lamps are conventional; others are the color-improved kind.

The new lighting system is the result of a group operation that includes Kirk Reid and David Toenjes of the Application Engineering Department, together with Fred H. Noon, Jack D. Felton, Lawrence A. Finn, and Clinton W. Meury of the General Services Department—all of the General Electric Lamp Division headquarters at Nela Park. It was one of the sights at the important meeting held by the General Electric Company at Nela Park, May 19-20, and was attended by 200 street-lighting representatives of municipalities and private utilities.

G-E 6-foot fluorescent luminaires mounted 25 feet high in Nela's mile of lighting.

Report on the Alaskan Way Viaduct

More than a year old, the new viaduct now carries an average of 32,000 cars per day.

ALASKAN WAY VIADUCT in Seattle, Wash., is 7,600 feet long and has two 3-lane roadways (the upper deck is northbound) 40 feet wide. The speed limit is 45 mph, and the capacity 3,600 cars per hour in each direction. Daily traffic averages 32,000 cars; 48,000 on Easter Sunday 1953.

The lower deck is lighted by General Electric fluorescent lights at 60-foot intervals, providing 1.7 foot-candles on the roadway. The upper deck is lighted by 21,000-lumen mercury-vapor lamps in Westinghouse OV-20 luminaires. These 400-watt fixtures are mounted on 4-foot brackets attached to Carco steel poles 28½ feet tall and spaced 120 feet apart.

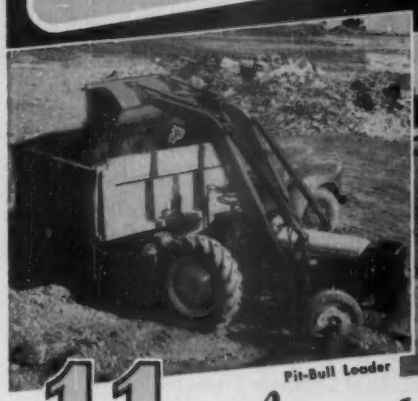
The purpose of the viaduct is to expedite traffic to and from and around the Seattle business district. The result is that traffic on main downtown streets has decreased 20%. Traffic on Fourth Avenue (Highway 99 through the city) has decreased over 30%.

The Davis

Pit Bull

Patent Pending

Replaces... HIGH-INVENTORY EQUIPMENT 11 TO 1


Pit-Bull Loader

Pit-Bull Broom

Pit-Bull Back-Hoe

11 Attachments... to 1 Basic Unit

Trencher

Fork Lift

Dozer

Hammer

Swinging Crane

Loader

Post Auger

Cab Attachment

Rotary Mower

Model 100 Loader

Here is a low-cost single unit that fits Ford or Ferguson tractors with 11 attachments that replace high-cost industrial machines.

Any of the attachments can be fitted to the basic ***Pit-Bull*** unit in only a few minutes, and another job is underway with the same operator at the finger-tip controls.

the PIT-BULL

- ★ *Cuts Labor Cost*
- ★ *Cuts Idle Labor Time*
- ★ *Cuts Idle Equipment Time*
- ★ *Cuts Heavy Equipment Inventory*
- ★ *Cuts Heavy Equipment Transportation Cost*
- ★ *Cuts Heavy Equipment Maintenance Cost*
- ★ *Cuts Heavy Equipment Operational Cost*

...Now, Look at Your Profit Margin

The basic ***Pit-Bull*** hydraulic power unit is attached to your Ford or Ferguson tractor by your dealer. This includes the installation of a syncro-mesh transmission with underdrive, providing four speeds in either direction and permitting you to change direction without shifting gears.

The driver's seat and steering controls are reversed, and ***Pit-Bull*** control levers installed so that the operator can manipulate the unit hour after hour *with ease and comfort*. This rear conversion enables the operator to maintain simultaneous control over the hydraulic operation and the tractor as well as to have a perfect view of the working area.

Attachments can be changed in a matter of minutes, and you buy only the attachments your particular job or operation requires. *See your dealer.*

The Davis Pit-Bull is manufactured by the makers of the Davis Model 100 Loader, America's quality front-end tractor loader.

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Because of its extremely long life and low maintenance requirements, Lock Joint Pipe is ideally suited for this purpose. Its smooth concrete walls assure permanent high capacity without periodic cleaning, and its conservative design gives maximum safety in congested areas where pipe line failure spells disaster and even minor repairs are difficult and costly.

If your pipe project calls for pressure pipe 16" in diameter or larger, specify Lock Joint, the trouble-free answer to your pressure pipe requirements.

For many years one of the leading producers of sewer, culvert and water supply pipe, Lock Joint also manufactures pressure pipe for:

INDUSTRIAL INSTALLATIONS (Supply, circulating and cooling systems)

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PRESSURE PIPE

When a City Employs a Fiscal Agent

AT LEAST TWO CASES have narrowly restricted the functions which may be performed by fiscal agents and advisers. In Florida, the City of Miami was enjoined from disposing of a $27,000,000 bond issue on the ground that the sale to its fiscal agent and adviser was against public policy and, therefore, void.* The case involved the financing of the city's sewerage system improvement program, as part of which the city had entered into a contract with the First Boston Corporation to act as its fiscal agent and adviser on all matters pertinent to the bond issue.

There was no question as to the necessity and value of such services. The statute, moreover, authorized the sale of the bonds at private sale. The sole question presented was whether such private sale could be made to the fiscal agent pursuant to a provision of a contract that the city would negotiate with it "in the first instance for the sale of the bonds" and that there would be no charge for the advisory services in the event that the bonds were purchased by the fiscal agent.

The court held that the contract by the city "to sell its bonds to its agent, advisor and employee is contrary to public policy . . . and therefore void."

To arrive at this conclusion, the court followed two lines of reasoning: first, the fiscal agent could not serve two masters in achieving the lowest net interest rate for the city, on the one hand, and the highest net interest rate for itself, as purchaser, on the other; and second, that the fiscal agent was an employee of the city and, therefore, could not lawfully have an interest in any contract with it under the common statutory prohibitions. While the public policy argument is difficult to square with the practical necessities of the financial market, it is at least a persuasive approach to the problem. The argument that a fiscal adviser becomes an employee of the municipality, however, is obviously contrary to all the experience of independent contractors who provide either professional services or work or materials to public bodies.

A Mississippi Case

In the Florida case, there was no question that the municipality had power to engage a fiscal agent and adviser to provide guidance to the governing body in obtaining the most favorable market for its sewerage revenue bonds. In a Mississippi case, however, the court further limited the scope of a contract for such services by holding that it was *ultra vires* for a city to agree to authorize a fiscal agent to procure necessary legal and engineering services required in connection with the bond issue, and to pay a fee, therefor, or to pay for a guarantee of the sale of such bonds in advance of the bond referendum.

In accord with established principles, the court held that it was a delegation of the power of the governing body to authorize the fiscal agent to select the legal and engineering advisers. Such delegation was not expressly authorized by the enabling statute, and it would not be implied from a provision authorizing the municipality "to do all things and perform all acts necessary, proper, or desirable to effectuate the full intent and purpose of the act." †

While these two decisions will cause sound fiscal advice to appear as an independent element of cost in bond issuance proceedings, they demonstrate a policy of the courts to favor the competitive bond market over the convenience of arrangements for private sale.

* Miami v. Benson, 63 So. (2d) 916 (Fla. 1953).

† J. L. Love Co. v. Town of Carthage, 65 So. (2d) 568 (Miss. 1953). In this case the contract was fully executed on both sides, but the decree allowed recovery, upon a taxpayer's suit, of the sum paid to the fiscal agents less such an amount as on discovery and an accounting might appear to have been reasonably and necessarily expended by the appellants in the performance of the contract. The decree did not affect the validity of the bond issue which had been purchased by the fiscal agents at public sale upon sealed bids.

—From chapter on Local Government by WILLIAM MILLER, in the *Annual Survey of American Law*, published in the New York University *Law Review* for February 1954.

Signs in the Street — Can Their Appearance Be Improved?

SIGNS IN THE STREET was the subject of an exhibition and symposium at New York's Museum of Modern Art this spring, aimed at displaying some outstanding examples of well-designed and well-lettered signs from this country and abroad, with neat uncluttered appearances, pleasing to the public eye.

To point up the twofold problem of legibility and appearance, the exhibit opened with a photo-mural of a typical New York street corner, as shown here, with a multitude of signs, conflicting in shape, lettering and message, ranged vertically on a single lamppost. This was effective evidence of what happens as the number of signs and instructions in city streets increase with population growth.

However, the Museum's display of single-purpose signs, such as the Bus Stop symbol, used by the London

Can more trim signs of the type shown at the right ever replace typical street sign clutter on city streets such as that shown at the left?

"I bought American Meters for these four reasons!"

"I thought all water meters were about alike until I took an American Meter apart, and found it had

Simplest design
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Fully interchangeable parts
Exceptional performance records

These features together with the competitive price sold me on the spot. Now we're buying American."

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Transport, and a shopping-center sign, from Northland in Detroit, indicated no clear way out of the dilemma.

Moreover, in a forum on the problem sponsored by the Museum, and attended by a number of well-known designers and architects, C. McKim Norton, vice-president of the Regional Plan Association, pointed out that in New York City alone, the coordination of street signs would involve the public expenditure of at least one-half million dollars, and some control over the two dozen departments, bureaus, and authorities which put up signs such as the Department of Traffic, which alone maintains 170,000 traffic signs; the offices of the five Borough Presidents; the Police Department; Department of Sanitation; Port of New York Authority; State Highway Department; New York Fire Department; Civil Defense Commission; Federal Post Office Department; the Transit Authority, which operates the subway, and the Triborough Bridge and Tunnel Authority.

Mr. Norton declared that the Commissioner of Traffic, Mr. T. T. Wiley, has submitted designs for new traffic-department signs to the Municipal Art Commission for approval, but that their location in relation to signs of other departments competing for attention is not coordinated by any single agency.

Training Taste for Leisure Hours

A BOOKLET prepared by the Bureau of Community Service, College of Arts and Sciences of the University of Kentucky, "Recreation for your Home Town," defines leisure as "the time for fun, for joyous living," and states that how we invest our leisure depends on our value system and the degree of our recreational literacy. These qualities are acquired from the people with whom we associate and allow us to choose those recreational activities best suited to us.

"Recreation," says the booklet, "is more than competitive sports. Just as all of life is part competition and part cooperation, recreation combines features of both, thereby becoming a parallel activity of the business side of life."

Opportunity for helping with the program is called one of the highest forms of recreation. "Planning for recreation, working to achieve it, participating in its programs, brings people into close relationship . . . and leads to mutual understandings and skills in attacking other problems facing the community."

Association of Metropolitan Regional Planning Bodies Organized

REPRESENTATIVES of 11 official and nonofficial metropolitan regional planning bodies met in Columbus, Ohio, on May 16 to organize an Association of Metropolitan Regional Planning Organizations to represent the interests and activities of such bodies throughout the United States. The meeting was held at the invitation of the American Planning conference. Henry Fagin, Planning Director of the Regional Plan Association, Inc., of New York, was chairman of the meeting.

Unanimous Vote

The persons in attendance at the meeting voted unanimously to constitute themselves an organizing committee for the Association, whose first formal meeting will be held on September 26 in Philadelphia at the time of the National Planning Conference of the American Society of Planning Officials.

Those present, beside Mr. Fagin, were:

T. Ledyard Blakeman, Director, Detroit Metropolitan Area Regional Planning Commission.

Robert Foeller, Planning Director, Toledo-Lucas County Planning Commission.

R. B. Garrabrant, Secretary, Industrial Council, Urban Land Institute, Washington, D. C.

Einar Gaustad, Director, Greater Milwaukee Committee for Community Improvement.

U. S. Grant, III, President, American Planning and Civic Association.

Frederick Gutheim, Member, National Capital Regional Planning Council.

George C. Hayward, Executive Secretary, Citizens Development Committee, Cincinnati.

Harlean James, Executive Secretary, American Planning and Civic Association.

Stephen A. Kaufman, Director, The Regional Planning Commission, Cleveland.

James McClain, Administrative Secretary, Pittsburgh Regional Planning Association.

Granville Moore, General Manager, Greater Dallas Planning Council.

Paul Oppermann, Director, San Francisco City and County Planning Commission (representing the Bay Area Planning Council).

Dora Padgett, Editor-Librarian, American Planning and Civic Association.

Oskar Stonorov, Philadelphia (representing the Southeastern Pennsylvania Regional Planning Commission).

Barbara Terrett, Washington, D. C.

The purposes of the new Association will be (1) to act as a national clearing house in the field of metropolitan regional planning; (2) to sponsor and conduct periodic conferences for citizens and professionals in this field; (3) to initiate or coordinate research on problems of metropolitan areas and to make the findings available in suitable form to persons and agencies holding membership in the Association, and (4) to assist in the creation of metropolitan regional bodies, both official and unofficial, in areas where there are now none, and to help strengthen the programs of existing agencies.

Provisional officers of the Organizing Committee are: President, T. Ledyard Blakeman; Vice-President, Henry Fagin; Secretary, Barbara Terrett. Frederick Gutheim, who called the meeting on behalf of some 20 organizations in metropolitan areas throughout the country, will act as adviser to the Association.

Membership on the Organizing Committee and its Steering Committee is open to representatives of other official and nonofficial metropolitan regional organizations and to interested citizens. Communications may be addressed to the President at 1002 Cadillac Square Bldg., Detroit 26, Mich., or to the Secretary at 901 Union Trust Bldg., Washington 5, D. C.

Summer Seminar in Community Relations

THE 1954 summer seminar in Community Relations and Communications will be held by the New York State School of Industrial and Labor Relations of Cornell University during the week of July 19 under Professor Wayne L. Hodges. It is presented each year for persons with responsibility in plant community relations. At this year's seminar specimen community relations problems will be illustrated by case studies presented by executives from such companies as Caterpillar, Pitney–Bowes, General Foods, Consolidated Edison, General Electric, and General Mills.

Last year's seminar, held during August, has been recorded in a 53-page mimeographed report by Professor Hodges' department. The 1953 course was planned to illustrate the definition of community relations as "public relations begun at home," while this year's meetings will stress community relations of specific companies and communities.

FIRST to provide ample strength in all-aluminum arms and arm-shaft joints through patented, seamless elliptical arms requiring no bracing for lengths up to 8 feet. On longer arms, one horizontally elliptical member, integrally welded to the arm, eliminates need for side-sway bracing.

FIRST to develop fabricating equipment and methods to permit use of high strength aluminum alloys.

FIRST to develop and produce seamless, tapered shafts from high-strength, extruded tubing in a wide range of diameters.

FIRST to pioneer the Aircomatic method of welding for fast, strong welds and negligible deterioration of alloy strength. All P & K welds are guaranteed . . . all P & K welding personnel and equipment is certified by U. S. Government agencies.

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FIRST to eliminate unnecessary scrolls, tie-rods and other ornamental frills.

FIRST to design and build its own tapering machine to handle all diameters of extruded aluminum tubing.

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Fort Worth Looks After Her Children

By ANNE HOLLIDAY WEBB, *Director*
Fort Worth Children's Museum, 1948-1953
Fort Worth, Texas

Fort Worth's New Children's Museum.

MANY AN OLDER ADULT has an uncomfortable memory of having been pulled along endless cases of objects and galleries of pictures by his mother or a favorite aunt. These tours of museums were part of the training of many young people in the early 1900's. Since that time museums have become exciting places, diversified, human, and understandable to the average visitor. Various types of museums have come into being and of these the Children's Museum meets the special needs of young people.

Such a museum is child-centered. Its exhibits and activities are geared to the inquiring young mind. In a very real sense it is the child's larger world where quite naturally he adjusts to other boys and girls of varied dispositions and backgrounds. Here he becomes acquainted with other contemporaries such as the people of many lands, shown in exhibits; the creatures of a nearby wood, or the trees and plants at his backdoor. Perhaps for the first time, he enters into the wonders of the past and begins to realize that the world is very old. The museum stretches his mind, spurs his imagination, and belongs to him.

The Busy Season

Children's museums are normally thronged with young people on Saturdays and on week days after school. One may come to see how the ancient Egyptian trapped birds or snared fish, about which he has been studying in school. Another may look up a real peace-pipe or "war bonnet" such as he saw last evening on Roy Rogers' television show. He may again and again loiter about the cases —he never stays long in any one place—until he is familiar with every detail of the exhibits—so much so that a new item introduced during his absence is sure to bring comments from him. A young girl may stop in the Arts and Crafts Workshop and put a few stitches in a leather bag she is making for her mother or go to the Live Museum to visit Jiggs, the new woolly monkey. In a very real sense these boys and girls are in their own world.

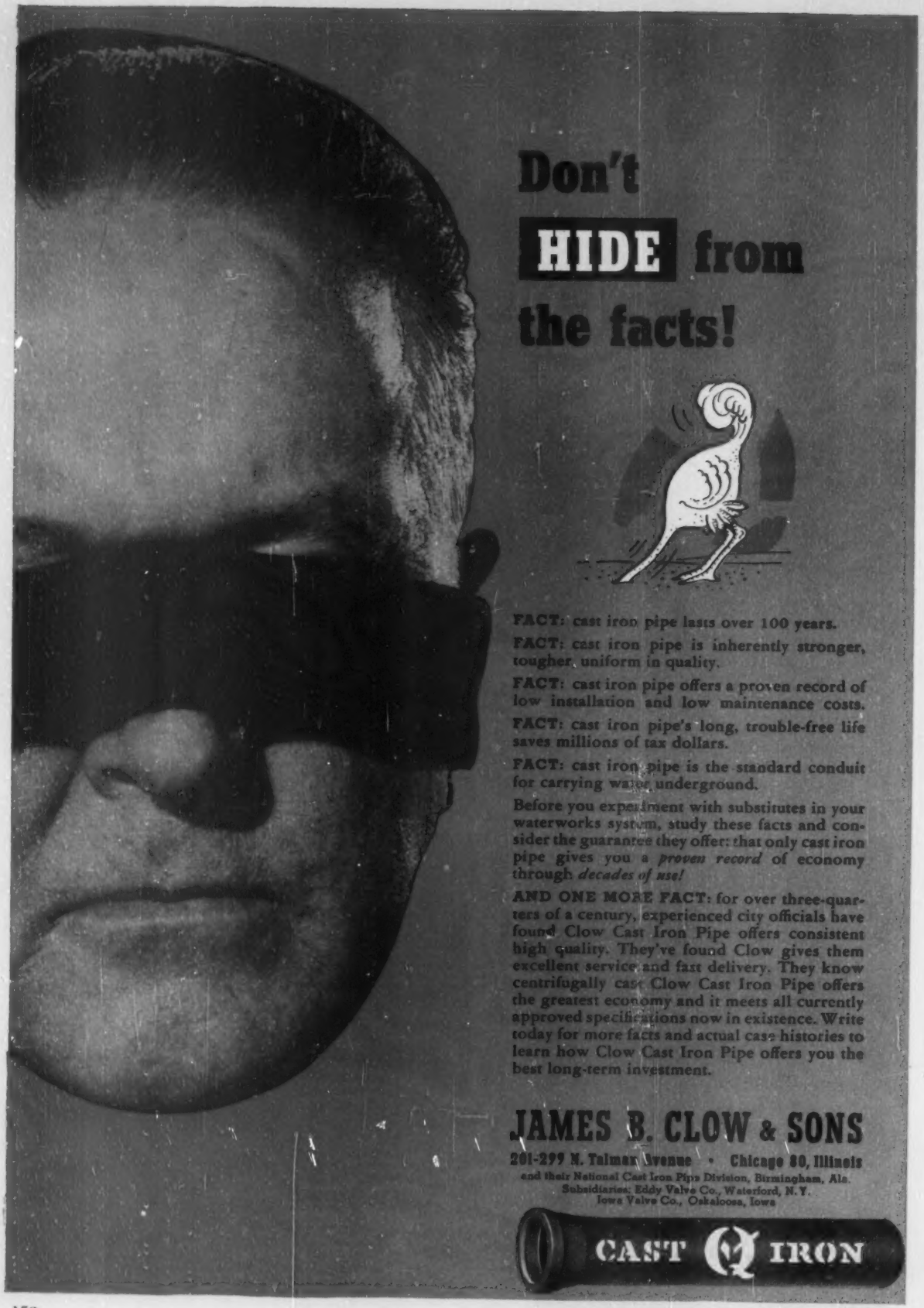
It is the recognition of the boy or girl as a growing, aspiring, vital individual which underlies all satisfactory practice in children's museums and justifies their existence as a distinct type in the museum field.

In 1939 a group of school executives, the Administrative Women in Education in Fort Worth, proposed a children's museum for Fort Worth to enrich the teaching in the public schools — an institution that would give visual reality to many subjects taught in classrooms and would provide opportunities for boys and girls to pursue a hobby or interest under the direction of competent museum instructors.

(Above, left) Teaching begins with the 3 to 5-year olds —The Age of Discovery. (Left) Dog obedience training class. (Above) Nature study at the source.

City Votes Bond Issues

The city became interested in the project and in 1945 a bond issue providing $300,000 for a children's museum building was approved by the voters. With this city-wide expression of interest, the first museum was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FACT: cast iron pipe lasts over 100 years.
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opened in two rooms in a public school made available by the Board of Education.

But the Museum was a "poor little rich girl" with only small personal donations to pay for its operation. There was a campaign for funds in 1947 and late that year, with $35,000 now available for operation during the next two years, the small collections were moved from the school to another temporary site in a nice old residence on a once fashionable street. The grounds were well shaded and ample. A large garage and several other small buildings were utilized as the Museum grew. This location was the proving ground for the Fort Worth Children's Museum. Exhibits were installed, regular classes in nature study, and the arts and crafts were established. School talks related to the school curricula were organized. This work with the schools developed to such proportions that in 1951 a Museum-School Coordinator, appointed and paid by the Board of Education, took charge of this work which was giving service annually to over 39,000 boys and girls coming in groups from their schools. Some 30 extra-curricular Museum classes were also established by 1952 and over 1,200 students were voluntarily enrolled during the year.

The Museum was maintained on a democratic basis. Children came from all parts of the community and from outlying and distant towns, some 100 miles away. Mothers and fathers were brought by their children on Sunday afternoons, and parents often accompanied a son or daughter to the astronomy classes held in the evening, and to the Planetarium shows which became a feature after the Charlie M. Noble Planetarium, honoring the teacher of astronomy, was presented by the Junior League of Fort Worth in 1951. Over 20,000 attended these demonsrations in 1951-52, despite the fact that the planetarium was housed in a tent and had a homemade dome.

The community voted an additional bond issue of $200,000 in 1951 to meet the rising cost of the permanent building, then in its planning stage. All bonds were sold in 1952 and construction was begun in October of that year.

New Building's Open House

When the public was invited to an Open House of the new building in November 1953, visitors thronged the spacious Rotunda, tramps up the winding ramp rising from the Rotunda to the Planetarium above, with a dome 30 feet in diameter and a seating capacity of 100. Two long exhibition galleries, about 40 feet by 96 feet each, were scanned with the charts and plans for exhibits to be installed as soon as funds become available.

Distinctive Features

The Live Museum, with about 75 small animals, many of them native to the area, drew many from the adjoining Rotunda. The guests looked approvingly at the Auditorium, seating 300 and equipped with a projection booth with several openings, permitting the operation of a continuous movie with two projectors. Many made a mental note of the suitability of the room for annual meetings of civic groups.

Since January 25, 1954, when the building was officially opened, large numbers of civic organizations and related groups have held their annual meetings in this room, finding the adjacent large Rotunda an ideal place for social mingling after the program. In terms of public usefulness and adaptability to the community needs of Fort Worth, the building has, in a few short months, proved increasingly its value.

The colors used throughout the Museum are a rich light blue with pink beige in the Rotunda and a deeper pastel blue, yellow, soft green, gray, and a rusty beige in other parts of the building to give a warm hospitable background for the varied activities and exhibits. There are no violent or strong color contrasts, but an almost uniform intensity of hue is maintained throughout. One side of the Rotunda is glazed and overlooks a corner of the grounds and a wooded ravine. Tropical plants and a brick pond are banked against the windows. Two corridors lead from the Rotunda making it possible to close off much of the building when only the Auditorium is in use.

Layout and Construction

In addition to the main areas already mentioned, there are on the main floor various administrative offices, the William Green Memorial Library, a Board and Members' Room, a sales desk, small kitchen, powder rooms, and other service rooms. On the ground floor are other offices, workshops for nature, arts and crafts classes, a photographic laboratory, School Loan Library, club rooms, carpenter and paint shops, heating and cooling plant, incinerator, small service kitchen for the Live Museum directly above, and various large storage areas, including a fine fumigating chamber.

The building is constructed of cinnamon-colored Roman brick, with door facings and other exterior details of light-pink cast stone. Panels of Crab Orchard Ledge Stone are also used at the two main entrances, exterior and interior. (There are in all seven exits or entrances, a feature which in another type of museum might prove extremely difficult and hazardous, but convenient in a children's museum.)

The interior construction is simple, of concrete blocks and concrete floors, except in the Rotunda and main floor corridors, where terrazzo flooring is used. Austin Shell Stone, a native stone rich with fossil remains, is used in matt finish for wall areas in the Rotunda.

Lighting and Ventilation

The galleries have no windows and while general top lighting is available, the chief light comes from the cases attached to wall plugs about two feet from the floor. Other plugs have been provided along the main axes of the galleries, which will permit the large areas in time to be divided into a number of smaller semienclosed exhibition units. Fluorescent lighting is provided throughout the building and in areas other than the galleries modern steel windows are generously used—Ceco intermediate-weight architectural projected windows.

The Museum has a combined heating and mechanically refrigerated air-conditioning system, with hot water for heating and chilled water for cooling. The two operate through a single convertible system. The boiler is a U. S. Radiator Corporation "Royal." The compression and other major items of equipment for air conditioning are Carrier. There are a number of individual air-handling units at strategic points, which receive cold or hot water piped from the central unit. From these subsidiary points the air is distributed, hot in winter, cold in summer.

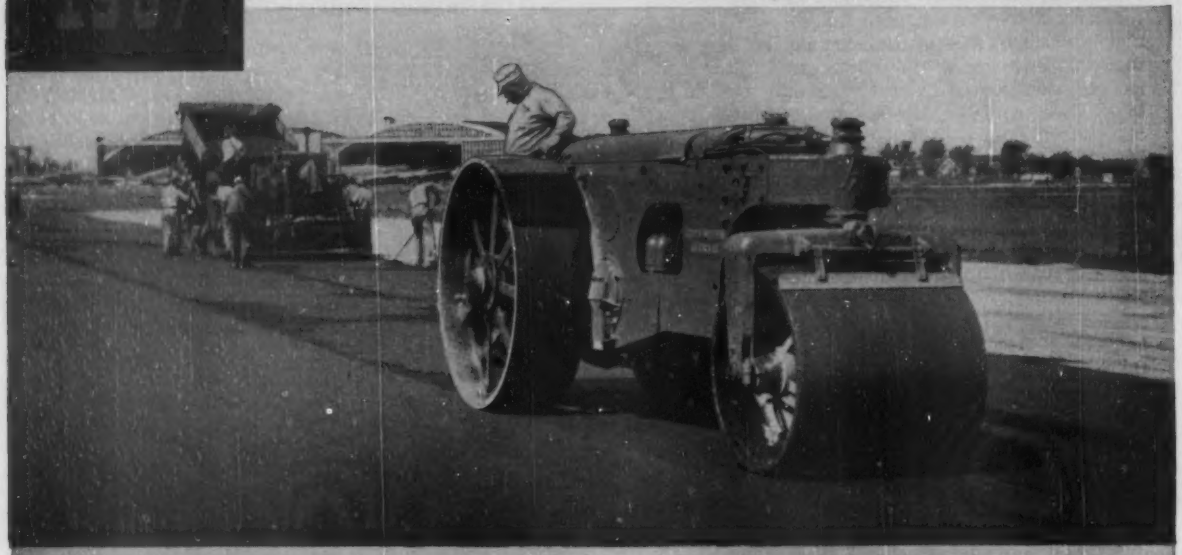
Among present activities the Fort Worth Children's Museum has a popular weekly and an occasional Sunday television program. At time of construction it was not practicable to wire the building for telecasting and broadcasting, but much preparation and facilities would be highly desirable, so that programs could originate in the Museum, allowing for more varied and timely presentation with much less trouble and expense.

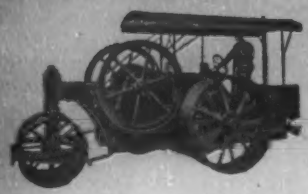
Up to the moment the Museum

(*Continued on page* 169)

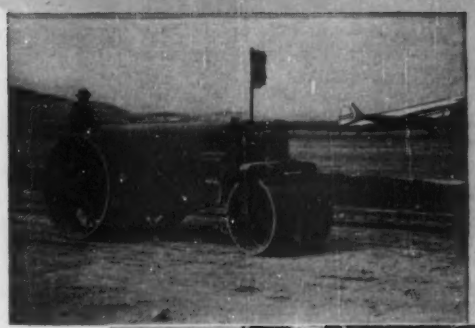
SINCE 1907

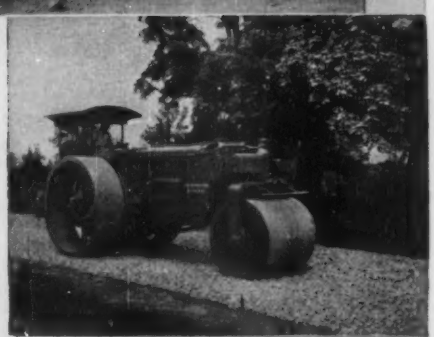
Famous for Dependability





They said it of the "one-lunger" of 1907, and they say it today . . . "Austin-Western rollers stay on the job day after day, and month after month, with less time lost for mechanical adjustments, maintenance and repair." That's DEPENDABILITY! Add to it the precision job of rolling that results from such things as Proper Weight Distribution, Vibrationless Power Units and Smooth Acting Clutches, and you have everything needed for top grade performance. The Autocrat is made in 10- and 12-ton sizes. Each has full-length side plates for maximum rigidity; low center of gravity for smooth operation, and hydraulic power steer. Each may be had with gas or diesel engine. Special equipment includes lights, sprinkling system, canopy top and powerful hydraulic scarifier.





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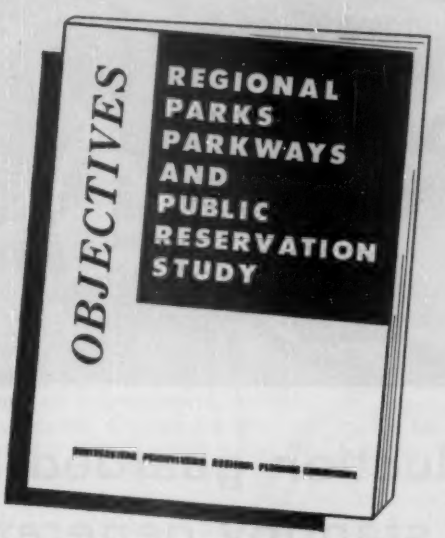
To Save Suburban Areas From Over-Development

A PLAN to protect suburban areas from excessive development, and to provide additional large-scale recreation facilities for Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, is being prepared by the Southeastern Pennsylvania Regional Planning Commission (Borough Hall, Bridgeport, Pa.), according to a report issued on June 16.

Funds for the preparation of the plan were provided through the State Planning Board.



The report outlines the objectives of the plan for a regional system of parks, parkways and public reservations that would conserve some of the natural beauty and rural character of the region, despite rapid residential, commercial and industrial development.

About 50 square miles in the four suburban counties have been covered with new residences since 1940, according to the report.

"In addition to the replacement of open farm lands, wooded areas, and large estates by new subdivisions, the development of new shopping centers, new factories, and the building of new highways are constantly taking up more land."

The report warns that large portions of the suburban counties will eventually be built up as "one solid mass of houses, stores, factories, streets and highways," unless large natural areas are acquired and preserved by some type of public agency.

New residential building in the suburban counties is occurring at such densities as to leave little rural character to land brought under development, the report asserts. Out of 17,000 building lots approved in new subdivisions during 1953 in Bucks, Delaware, and Montgomery counties, only 3% are one acre or larger.

The system will be financed on a regional basis, with possible supplementary funds from the state.

The Bucks, Chester, Delaware, and Montgomery County Planning Commissions and the Philadelphia City Planning Commission are cooperating in the preparation of the regional recreation plan.

The firm of Wheelwright, Stevenson, Langran and Fanning will assist the official planning agencies.

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NEW IDEA IN TRAFFIC STOPPERS ... at NEW LOW PRICES!
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They're made of 30 ga. steel and are furnished in two shapes... octagon and diamond... and in 2 sizes... 24 in. and 30 in. May be applied in less than 5 minutes, and without taking present sign out of service. Any copy you may desire... standard and regulatory, or your own special copy if you prefer. Now in wide use in New York, Nevada, Texas, Minnesota, Kentucky, Ohio, Missouri, Iowa and other states and cities. INVESTIGATE..and save. Their cost is HALF that of ordinary signs!
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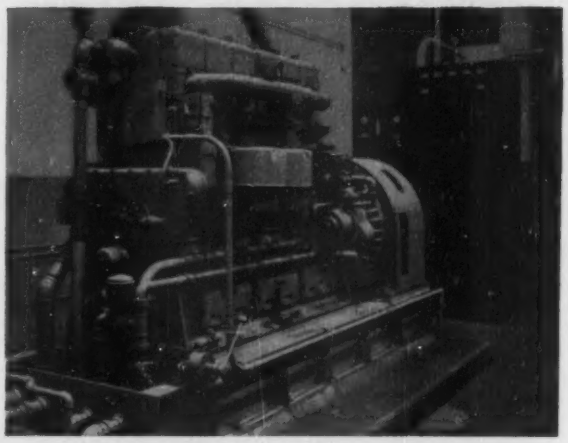
To maintain safe levels of illumination, keep plant communications working, and supply power for the fire alarm system and stationary fire equipment are the main objectives assigned to the newly installed standby electrical system at North American Aviation's Columbus, Ohio, plant.

Heart of this system is National Supply's heavy-duty Superior 6G-510 gas engine, rated at 295 BHP for 900 RPM operation of a 200 KW Elliot generator. Because of the plant's size—nearly 300 acres—and the scope of manufacturing operations—17,000 employees on "round-the-clock" production schedules—the dependability and performance of this standby generator is vitally important.

Whatever your power generation requirements, be sure to have the profitable facts of National Supply's complete line (4 to 1765 HP) of Superior, Atlas and Lister diesel engines for power generation. Write or call the nearest sales and service point listed below.



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Interesting Features of Sacramento Redevelopment Program

SACRAMENTO — A Model for Small City Redevelopment" is the title of an article in the June 1954 issue of the *Architectural Forum*, describing the long-range redevelopment plans of California's capital city. The plans call for an eventual rehabilitation of 25% of the aging commercial area of the West End of Sacramento. According to the *Forum*, the program is proportionately larger for a city of Sacramento's size than Pittsburgh's celebrated Golden Triangle redevelopment efforts. Also contemplated in the California city's plan is the changing of a large part of the principal riverfront section from the present railroad and commercial uses to uses consisting of an attractive waterfront park, a boat-house, and hotel facilities.

The article throws light on two points that should be of interest to readers of THE AMERICAN CITY: the basic approach to the redevelopment problem which is being used in Sacramento and an interesting feature of the California Redevelopment Law which provides a unique source of funds for redevelopment projects. With regard to Sacramento's approach, the *Forum* article quotes Redevelopment Director Joseph T. Bill as follows:

> I think large cities can push forward in an impersonal way with a program which is clearly needed, more easily than the small city, where, due to its size, personal acquaintance and accountability for one's actions are more important. This applies to legislative bodies as well as individuals. . . . Like most cities of this size, Sacramento moves very slowly on a project that requires dramatic change. It must, in truth, be a grass-roots program. I have discovered that no high pressure is needed. The big problem is to secure a wide coverage of understanding of what you are trying to do and how you propose to do it . . . it is a problem of communication.

The California law, which the *Forum* says should be even more nourishing to redevelopment than the California sun is to oranges, permits the rise in property tax income resulting from the redevelopment of an area to be allocated to a city redevelopment fund.

It is estimated that the tax increase resulting from the Sacramento project will amount to about $250,000 per year.

It is also expected that "the city money to be invested in the project could easily come from a bond issue based on this tax income."

Purchasing for the Village of Winnetka

CENTRALIZED PURCHASING has been a part of the Village of Winnetka, Ill., administrative organization since 1915, purchasing being handled by the Finance Department with the Director, as Purchasing Agent, directly responsible to the Village Manager.

Invitations to bid are offered to a reasonable number of eligible suppliers on all major items of service, equipment, and material. Local suppliers are given equal consideration, but never a priority. All orders are awarded on the basis of quality, delivery, service, terms, and price without regard for other considerations. To shorten the period of time between requisitioning by the several departments and actual delivery of the commodity, many quotations are obtained by telephone. Purchasing directly by departments is limited to parts for emergency repair work.

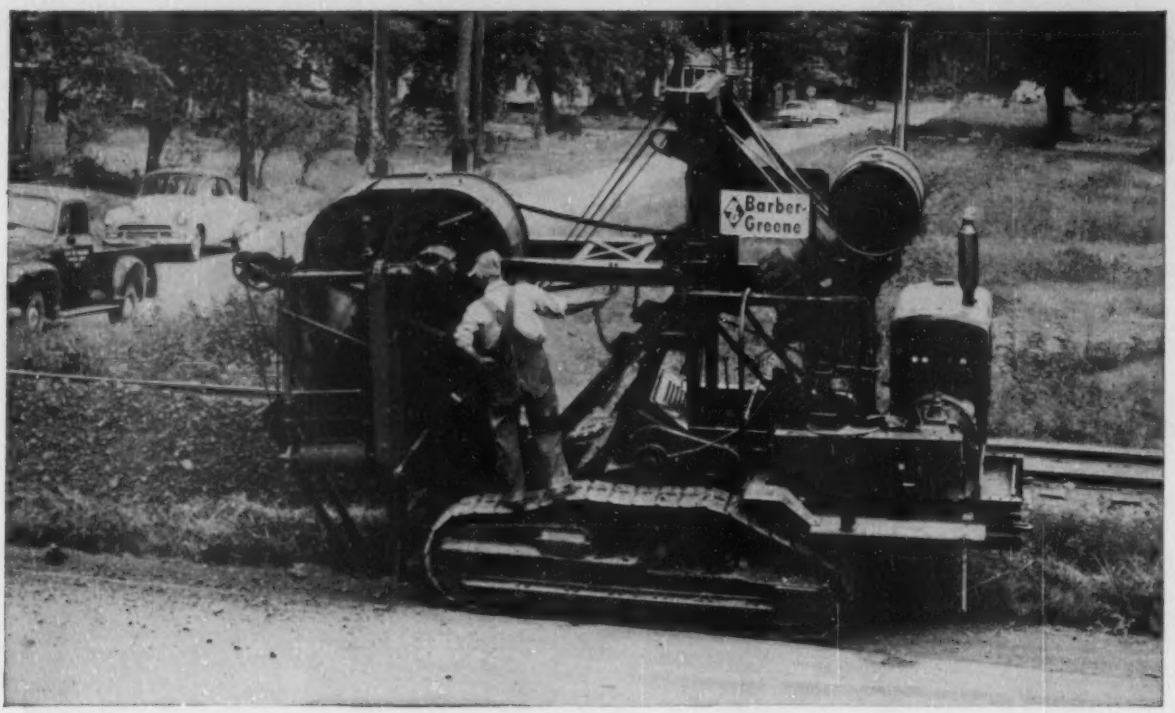
Some 500 suppliers were utilized during the year 1952-53 in obtaining nearly $615,000 worth of equipment, supplies, and material. Over 125 new sources of supply were investigated and added to the growing list of village suppliers.

Prices for commodity classifications used by Winnetka were at their lowest point in January 1953, with the exception of building materials and paint. The lifting of all price controls by the federal government in March 1953 resulted in immediate price increases in many commodities. In general, all suppliers met quoted delivery schedules throughout the year and evidenced the return of more competitive market conditions by personal representation, price quotations, service and delivery offerings, and invoice terms.

Gold Coast Begins Construction of New Port Town

THE GOLD COAST in Africa is one of several underdeveloped countries in the process of constructing new towns, cities, and new capitals. Photo at left shows the Prime Minister of the Gold Coast, Dr. Kwame Nkrumah, digging the first turf to inaugurate the completely planned new port town of Tema, which will contain 80,000 people, and be divided into seven self-contained communities, each with its own schools, market, churches, and recreational facilities. With him are Dr. I. B. Asafu-Adjaye (left), Chairman of the Tema Development Corporation, and Mr. A. R. Baster, British Acting Director.

Photo at the right shows master plan for new town, with each of seven communities centered around community center marked "M." The plan also shows the proposed breakwater, and tree-lined main boulevard.



Important Power Developments For Ditchers

Minneapolis-Moline powered Barber-Greene ditchers and Warner-Swasey Gradalls are examples of the trend to heavy-duty power in excavators. Continuous-operation and high-capacity requirements of these models are met by MM engines with a reserve of high-torque power.

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D283-4A diesel	4 cyl.	4¼"x5"	1210-12A	12 cyl.	4⅜"x6"
403-4A	4 cyl.	4⅜"x6"	1600-12A	12 cyl.	5⅛"x6"
425-6A	6 cyl.	4¼"x5"			

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Change of Zoning Regulations After Issuance Of Building Permit

MINNESOTA. *Kiges* v. *City of Saint Paul*, 62 North Western (2d) 363 (Supreme Court, December 31, 1953).

The St. Paul zoning ordinance included an elaborate set of regulations to cover the situation where the applicable zoning regulations are changed so as to make nonconforming a use authorized in a building permit issued before the change, but not yet completed. Under these provisions, 50% of the owners on any street could present a petition requesting a zoning amendment, and the filing of such a petition would suspend the right to initiate any use which would not conform to the proposed change.

In this case, a dry cleaning establishment was proposed in a residential area rezoned long ago for commercial purposes—"in mistaken expectation of commercial developments in that area," according to the Court. After a complicated series of objections and counter-moves, during which the plaintiff spent about $1,000 (principally for excavation work and for various incidental expenses) but did no work above the foundations, the Court held that a petition presented under the above provisions was sufficient to prevent the proposed establishment. The Court also held that the required acquiescence of two-thirds of the owners within 100 feet applied to the 100-foot strip extending out from the outer perimeter of the entire area affected, not from some smaller section within the area.

Parking District

NEW YORK. *Vernon Park Realty, Inc.* v. *City of Mount Vernon*, 125 N. Y. Supplement (2d) 112 (Appellate Division, October 19, 1953).

An area next to the main New Haven railroad station had long been used for parking, but was sold off by the railroad to private developers. The area had long ago been placed in a residential district, but was surrounded by business buildings. When a developer started proceedings to develop it for business use, the city placed the land in a new "Designed Parking District" which did not apply to any other privately-owned land. In such a district, a land could be used only for parking, a filling station within a parking garage, and any nonconforming use permitted before rezoning to such district—i.e. parking.

The Court held, not surprisingly, that a zoning district permitting only this one single use for the land was an unconstitutional deprivation of property rights. It was also held that the existence of an option to reconvey to the railroad if a zoning change could not be obtained did not preclude bringing the action, nor did the fact that the land was purchased with knowledge of the zoning restrictions.

Editorial Comment.—A special district to apply to parking areas has been established in several cities. Perhaps the facts of this case did not provide a fair test, but the decision turned upon the essential difficulty—restricting private property to a single use. In the most frequent situation where such a district could be used, i.e. to provide room for parking behind a main shopping street, at least two alternative devices are available. First, accessory parking for commercial establishments may be permitted within residence districts at the edge of commercial districts, perhaps under a special permit procedure. However, while this makes it easy to set various restrictive conditions, permitting a commercial parking lot within a residence district is a contradiction in terms. The more honest procedure is to extend the commercial district back to include the parking areas, and then to impose various conditions to protect adjacent residences.

School Planning

MICHIGAN. *School District No. 3, Norton Township* v. *Michigan Municipal Finance Commission*, 62 North Western (2d) 445 (Supreme Court, February 18, 1954).

IDAHO. *Independent School District of Boise City* v. *C. B. Lauch Construction Co.*, 264 Pacific (2d) 687 (Supreme Court, December 18, 1953).

NEW JERSEY. *Citizens to Protect Public Funds* v. *Board of Education of Parsippany–Troy Hills Township*, 98 Atlantic (2d) 673 (Supreme Court, June 25, 1953).

MONTANA. *Lorang* v. *High School District "C" of Cascade County*, 247 Pacific (2d) 477 (Supreme Court, August 16, 1952).

PENNSYLVANIA. *Schwartz* v. *O'Hara Township School District*, 100 Atlantic (2d) 621 (Supreme Court of Pennsylvania, November 24, 1953).

The children coming from huge postwar increase in births have now begun to enter the elementary schools, and in fact a secondary peak from births during the war years is already about to enter the junior high schools. The result all over the country has necessarily been an enormous increase in school construction. The scattered litigation resulting from this, often at the instance of defendants in eminent domain proceedings or of "taxpayers' leagues," illustrates some of the problems involved.

The Michigan case involved a need for school facilities to serve a growing residential area located some distance from existing schools. The local authorities decided that the best solution would be to add four rooms to an existing school building, to buy an additional school bus to bring children from the growing part of the school district, and to acquire land for an additional site for use later. The Court held that "the new school bus should be considered as a necessary incident to increased school facilities," and need not be listed as a separate item, apart from the other two, on the ballot for a referendum.

In the Idaho case, the proposed condemnation of three tracts to provide a total of 130 acres as a site for a "campus-type high school" for 2,500 students was challenged, on the ground that 35 acres was plenty of room for such a school. The 41-acre tract of pasture land actually involved in the litigation was apparently between two large parcels already acquired for the same purpose. By a 3 to 2 vote, the Court upheld the condemnation. The two opinions provide an interesting illustration of the broad and narrow judicial attitudes toward eminent domain. The majority opinion emphasized that the school authorities should take into account not only present but future needs.

In the New Jersey case, the Township authorities published an 18-page booklet on a proposed school building program—setting forth at length the facts tending to indicate a need for more schools, together with the effect upon taxes, and adding at the end a single page urging in strong terms an affirmative vote on the program. Exhortations to "Vote Yes" also appeared a few times elsewhere. Although the case was already moot, the Court stated that, because the last page did not present all the arguments on both sides, this booklet constituted an expenditure of public funds to set forth only one side of a debate and was therefore improper. One judge differed, arguing in effect that it was unrealistic to insist that a Board could present "facts" bearing on the proposed program, but could not draw any conclusions from such facts. The Court also held that the proposal need not, and in fact could not, be submitted to the Planning Board before approval by referendum.

In the Montana case, the Court held that a referendum on the issuance of bonds for school construction and on the proposed site should be held at the same time.

In the Pennsylvania case, the Court held that children residing on the grounds of a V. A. hospital were not entitled to free education in local public schools.

Miscellaneous Minor Cases

PENNSYLVANIA. *Pincus* v. *Power*, 101 Atlantic (2d) 914 (Supreme Court, January 4, 1954).

A variance was refused for proposed stores on the ground floor, beneath dwelling units upstairs, in a residence district. The Court recognized the proximity of the proposed commercial structures—"noisy, dirty, and possibly odorous"—to new residences across the rear lot line, and also held that the existence of commercial zoning across a wide street in front did not justify the variance.

OKLAHOMA. *City of Tulsa* v. *Mizel*, 265 Pacific (2d) 496 (Supreme Court, December 1, 1953).

An open yard for wholesale and retail sale of new and reconditioned oil-well supplies was held to be a permitted use, along with other retail and wholesale businesses, in a commercial district in Tulsa.

NEW YORK. *Long Island Lighting Co.* v. *Village of East Rockaway*, 304 New York 932, 110 North Eastern (2d) 743 (Court of Appeals, January 15, 1953). The Zoning Board's refusal to grant a variance permitting an electric substation in a residence district was upheld by the courts, in a series of memorandum opinions.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Annexation—Where One of Several Tracts Not Subject to Annexation Entire Ordinance Invalid

In action by county against city challenging validity of annexation ordinance, held that ordinance was invalid since city does not have power to carve out of unplatted tract containing more than 20 acres, a tract not exceeding 20 acres and annex same to city, except when that becomes necessary for purpose of making city boundary line straight and harmonious. *State ex rel. Hawkes* v. *City of Topeka*, 264 Pac. (2d) 901 (Kans., Dec. 12, 1953).

Assessment Liens—Power of City To Sell and Assign to Third Party For Collection

In mandamus to compel city collector to accept sum of money in satisfaction of special assessment on plaintiff's property, wherein city defended on grounds that special assessment judgment liens had been sold and assigned to others, held that statute authorizing sale and assignment of such liens was not unconstitutional on ground that it permitted persons other than duly authorized public officials to collect taxes. *People ex rel. Drobnick* v. *City of Waukegan*, 116 N. E. (2d) 365 (Ill., Nov. 18, 1953). *Reh. den.* Jan. 18, 1954.

Baseball Park—Injury from Collapse of Grandstand—City Liable for Lessee's Acts

In action against city for injuries sustained by spectator at baseball game in city park when grandstand, which had been moved to park by owners of baseball team, collapsed, held that city could not escape its responsibility to public by purportedly releasing its privilege and duty to inspect and keep city park in reasonably safe condition, where use of such city-owned realty is for public entertainment and recreation. *City of Guymon* v. *Finicum*, 265 Pac. (2d) 706 (Okla., Dec. 15, 1953). *Reh. den.* Jan. 19, 1954.

Bonds—Combining of Water and and Sewer Bonds—Statute

In mandamus by city to compel state auditor to register water and sewage systems revenue bonds, held that statute authorizing combination of water and sewage systems in certain cities, classified by population, was valid. *City of Lawrence* v. *Robb, State Auditor*, 265 Pac. (2d) 317 (Kans., Jan. 4, 1954).

Building Inspector—Failure to Find Defect Later Causing Death of Plumber—City Not Liable

Where plumber was accidentally electrocuted by contact with electrically charged gas pipe while repairing plumbing in private residence, held that building code provision giving city's inspector access to all buildings, upon application to owner of premises, did not give city such control of all buildings and houses as would render it liable, under doctrine of *res ipsa loquitur*, for death of plumber. *Lawson* v. *City of Chattanooga*, 263 S. W. (2d) 638 (Tenn. App., May 6, 1953). *Cert. den.* by Sup. Ct., Oct. 9, 1953.

Condemnation—Price Fixed By City Arbitrary

In action by landowner against city for damages caused by condemnation, held that bad faith was shown where city arbitrarily set $100 per acre price to be paid all landowners regardless of damages sustained by each. *City of Teague* v. *Stiles*, 263 S. W. (2d) 623 (Tex. Civ. App., Oct. 1, 153). *Reh. den.* Jan. 14, 1954.

Contract to Convey Land to City In Consideration of Zoning Amendment Invalid

In action by city to compel owners of certain land to convey to city or for decree declaring that it had been dedicated to city, held that agreement whereby land was to be conveyed to city if city amended zoning ordinance was illegal as opposed to public policy and was not enforceable against party who bought land with knowledge of agreement. *City of Knoxville* v. *Ambrister*, 263 S. W. (2d) (Tenn., Dec. 11, 1953).

Gambling—Evidence Game Played Sufficient for Conviction

On appeal by defendants from conviction of violating ordinance of City of Fresno forbidding conducting of gambling games, held that evidence establishing playing of game of panguingui in defendant's establishment was sufficient to support conviction. *People* v. *Ambrose*, 265 Pac. (2d) 191 (Cal. Super. Ct., Fresno Cty., 1953).

Garbage Contracts — Recital of Emergency Where None Exists Invalidates — Competitive Bids Required

In action against city, city incinerator authority, and corporation, which had been awarded garbage disposal contracts, to have contracts declared invalid, held that contracts were *ultra vires* where entered into without advertising for bids under alleged emergency where no emergency existed. *Scatuorchio* v. *Jersey City Incinerator Authority*, 100 Atl. (2d) 869 (N. J., Nov. 23, 1953).

License Taxes—County's Power to Impose on City Power Plant Denied

In action against city by county to collect county license tax imposed for revenue purposes upon business of generating electric power, held that legislature did not intend to delegate to counties power to license for revenue purposes under statute providing that county shall have power to fix, impose, and collect license tax to regulate lawful trades, professions, and businesses conducted within county but outside limits of incorporated cities and towns. *Clark County* v. *City of Los Angeles*, 265 Pac. (2d) 216 (Nev., Jan. 6, 1954).

Parking—Prohibiting on One Side Of Street Except for Court Personnel Upheld

In action for violation of regulation of Boston traffic commission forbidding parking on one side of certain street except by members and officers of general court, held that such parking regulation was not unconstitutionally discriminatory. *Commonwealth* v. *Sargent*, 117 N. E. (2d) 154 (Mass., Dec. 31, 1953).

Railroad Crossings—State May Require Company to Construct and Maintain

In action by railroad to enjoin Public Service Commission from enforcing its order requiring railroad to permit construction of highway over its right of way, held that railroad's right of way was impressed with a public interest permitting state, under its police power, to require railroad to construct and maintain such crossings as are reasonable and necessary for the public's use. *Illinois Central R. Co.* v. *Louisiana Public Services Com'n*, 69 So. (2d) 43 (La., Nov. 9, 1953) *Reh. den.* Dec. 14, 1953.

Sewers, Storm—Overflow as Nuisance

In action against city by owner of property through which city storm sewer ran, for city's alleged maintenance of nuisance in allowing surface water to exceed sewer's capacity, held that municipality is liable where, in exercise of its function, both governmental and ministerial, it creates nuisance which is specially injurious to individuals. *City of Macon* v. *Cannon*, 79 S. E. (2d) 816 (Ga. App., Jan. 14, 1954).

Sidewalks—Snow and Ice Causing Injuries—Whether City Negligent For Injury — Three Week Statute

In action against city for injuries sustained by plaintiff in fall allegedly due to accumulation of snow and ice on sidewalk, held, in reversing judgment for city and remanding, that natural accumulation of snow and ice may constitute actionable defect or obstruction on sidewalk, without there being present any structural defect, and that whether snow and ice had been in existence for three-week period required by statute was question for jury. *Trobaugh* v. *City of Milwaukee*, 61 N. W. (2d) 866 (Wis., Dec. 30, 1953).

Sidewalks—Injuries—Abutting Owner Must Have Notice to Repair from City

In action against property owners for injuries received in fall caused by deteriorated condition of sidewalk upon which delivery vehicles frequently passed for their own convenience in making deliveries, held that adjacent property owners are not required to make repairs until notified by city to do so, and in absence of such notice are not liable to person injured by defects. *Andreson* v. *Burbank*, 62 N. W. (2d) 135 (Nebr., Jan. 15, 1954).

Traffic Lights—Defective Causing Injuries—City Not Liable

In action against city for injuries from collision at intersection allegedly due to defective traffic light, held that city was not liable since maintenance of traffic light is a governmental function. *Burchett* v. *City of Stanton*, 262 S. W. (2d) 952 (Tex. Civ. App., June 10, 1953).

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Recent City Manager Appointments

Celina, Ohio, has appointed R. W. BARKLEY city manager succeeding Arch Robison.

The first city manager of Okmulgee, Okla., is R. MARSHALL BINGHAM, former manager of Dalhart, Texas.

ARTHUR BLESSING, former planning director, was appointed city manager of Schenectady, N. Y., succeeding Morris M. Cohn.

Madawaska, Maine, has appointed EARLE BBILL, as city manager to succeed Leo J. Morency.

Succeeding John R. Hellams as city manager of Avondale Estates, Ga., is DEWEY C. BROWN, JR., the former city clerk and treasurer.

JEPTHA J. CARRELL was appointed city manager of Xenia, Ohio, succeeding G. D. Ackerman. He was formerly assistant manager at Montgomery County, Md.

RAY CASE, the former manager of Greeley, Colo., was appointed city manager of Grand Forks, N. D., succeeding B. J. Rockwood.

Woodstock, Ill., has appointed the former city engineer of Rockford, Ill., WILLIAM H. DAY, to succeed L. M. Lovejoy as city manager.

JOSEPH F. COURTNEY, the former assistant manager at Medford, Mass., succeeds Dean C. Cushing as city manager of Wilmington, Mass.

The one-time manager of Newport, Maine, LEON E. FITTS, was appointed city manager of Thomaston, Maine, succeeding Harold W. Putnam.

HAROLD B. GILBERT left the managership of Orrington, Maine, to succeed Allen L. Torrey as city manager of Camden, Maine.

Auburn, Calif., has appointed L. F. KENGLE, a former registered mechanical engineer, to succeed Willis Endicott as city manager.

MARWOOD F. RUPP, formerly administrative assistant at Middletown, Ohio, succeeds Gayle T. Martin as city manager of Deerfield, Ill.

The first manager of Lake Mills, Wis., is JAMES R. SCHUBERT, formerly assistant manager at Westerville, Ohio.

R. B. SHERRILL, JR., formerly city engineer of Vernon, Texas, was appointed city manager of Lufkin, Texas, succeeding Joe McClendon.

The first manager of Baldwin Borough, Pa., is JAMES B. SULLIVAN.

JOHN W. TRUE, former manager of Old Orchard Beach, Maine, was appointed first city manager of Hampton, N. H.

Aransas Pass, Texas, has appointed C. W. VETTERS, the former assistant manager at Corpus Christi, Texas, city manager succeeding T. E. Griffith.

GEORGE W. WELSH, the one-time mayor, was appointed city manager of Grand Rapids, Mich., succeeding M. M. Moore.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association

Fort Worth Looks After Her Children

(*Continued from page* 159)

has been operated entirely by private contributions, although there is general recognition that the educational nature of the Museum more fittingly places it among tax-supported institutions. Pending a vote on this tax-amendment the Museum is operated by funds provided by the United Fund, established two years ago and eliminating campaigns such as had on two occasions in the past financed the Museum's operations. The city has provided $15,000 for this year's maintenance of the building and $40,000 came from the United Fund. Under provision of the Fund, it is not now possible to supplement this allotment with membership dues such as had existed in the earlier years. This is a somewhat unhappy situation, primarily because memberships are means whereby the citizens can individually express their interest in the Museum.

Thus in nine years Fort Worth has provided an institution meeting community needs in a concrete way and has established a home that provides for continued expansion of its services and the growth of its exhibits. It is operated by a staff of 10 people with many volunteers from the Junior League of Fort Worth, the Museum Guild, the Altrusa Club, and other service groups. William G. Hassler is Executive Director. Architects were Wilson and Patterson, of Fort Worth, Texas.

Working Conditions in Planning Agencies

PLANNERS can look forward to a long career! The retirement age in planning agencies seems to be more often 70 than 65, with almost a third of the agencies stating that there is no compulsory retirement age. All but two of the agencies reported that some form of health insurance is available to their employees. The hard-working staff of the planning offices frequently enjoys compensatory time off for their overtime work, but in many cases the director or the department head does not participate in this particular benefit.

This summarizes just a few of the answers from 171 planning agencies in the United States and Canada to questions propounded by the American Society of Planning Officials. The data have been summarized in the May 1954 Planning Advisory Service Information Report No. 62, *Personnel and Administrative Practices Governing Professional Staff of Planning Agencies.**

Other working conditions covered in the report are salaries, travel expenses, vacations, sick leave, qualifications, and residence requirements, etc.

* Planning Advisory Service Information Reports are available only through annual subscription to the Service. Write to the American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.

REPRESENTATIVE MUNICIPAL BOND ISSUES

June 1 to June 11, 1954

Date of Sale			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
6- 1-54	Columbus, Ind.	$ 65,000	Sewer Construction	4	1.563
6- 1-54	Mueller Tp., Mich.	46,000	Public Improvement	5½	2.48
6- 2-54	Derby, Conn.	150,000	Improvement	8½	2.131
6- 2-54	Central Falls, R. I.	150,000	Refunding	12	3.16
6- 3-54	Burlington, Vt.	915,000	General Improvement and Refunding	12½	1.88
6- 7-54	Aurora, Ind.	115,000	Gas System Revenue	12¼	3.46
6- 7-54	Pleasantville, N. J.	15,000	Street Equipment	2	2.11
6- 7-54	Barberton, O.	250,000	Municipal Building	11½	2.61
6- 7-54	Lakewood, O.	250,000	City Portion—Sewer Imp.	13½	2.39
6- 7-54	Sturgis, S. D.	14,000	General Obligation Sanitary Garbage Disposal	6	1.93
6- 8-54	Harrisburg, Pa.	500,000	General Obligation Imp.	7½	1.47
6- 8-54	La Porte, Ind.	55,000	Fire Equipment, 1954	6½	1.942
6- 8-54	New Castle Co., Del.	280,000	Oak Grove School Dist. No. 130	9½	2.435
6- 8-54	Avon-by-the-Sea, N. J.	31,000	Fire Truck	5½	2.14
6- 9-54	South Pasadena, Cal.	1,645,000	Unified School Dist. Bldg.	15	2.4527
6- 9-54	Buffalo, N. Y.	500,000	Sewer System Imp. and Ext.	18¾	2.59
6- 9-54	Ludlow, Vt.	62,000	Refunding	8¼	2.19
6-10-54	Des Moines, Ia.	1,000,000	Sewer Revenue	5¾	1.74

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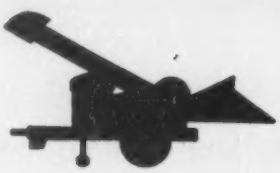

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

July 21-24—New York, N. Y.
NATIONAL SECRETARIES ASSOCIATION. Annual Meeting (Waldorf-Astoria Hotel). Exec. Sec., Helen J. Boyle, 25 E. 12th St., Kansas City 6E, Mo.

July 25-31—Sao Paulo, Brazil
INTERAMERICAN ASSOCIATION OF SANITARY ENGINEERING. Interamerican Conference of Sanitary Engineering (Engineering Institute of Sao Paulo, Polytechnic School of the University of Sao Paulo). For information, address the General Secretariat, IV International Conference of Sanitary Engineering, Caixa Postal 8099, Sao Paulo, Brazil.

July 26-28—Philadelphia, Pa.
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Benjamin Franklin Hotel). Exec. Dir., Samuel Siegle, 420 State Theatre Bldg., Harrisburg, Pa.

Aug. 19-20—Fargo, N. D.
MID-CONTINENT PARKS AND RECREATION CONVENTION. For information address C. P. Reed, Superintendent of Parks and Recreation, Fargo Park District, Box 1796, Fargo, N. D.

Aug. 25-27—State College, Pa.
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Pennsylvania State College). State College, Pa. Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 29-Sept. 2—Windsor, Ontario
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Meeting (Prince Edward Hotel). Exec. Dir., George S. Mooney, Office M-16, Mount Royal Hotel, Montreal, Quebec, Canada.

Aug. 30-Sept 3—Atlantic City, N. J.
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Haddon Hall). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

Sept. 9-10—Montauk, L. I.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Fall Meeting (Montauk Manor). Sec.-Treas., Kimball Blanchard, 50 W. 50th St., New York 20, N. Y.

Sept. 12-14—Williston, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Plainsman Hotel). Exec. Sec., Roberta C. Burr, 504½ Main Ave., Bismarck, N. D.

Sept. 12-15—San Francisco, Calif.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Meeting (St. Francis Hotel). General Counsel, Charles S. Rhyne, 726 Jackson Pl. NW., Washington 6, D. C.

***Sept. 12-16—Spokane, Wash.**
NATIONAL CONFERENCE OF STATE PARKS. Traveling meeting beginning at Spokane and ending at Olympic Peninsula (Lake Crescent Lodge). Exec. Sec., Miss Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

Sept. 13-15—Shawnee-on-Delaware, Pa.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Meeting (Shawnee Inn). Sec., Elsie V. Haas, 684 Park Ave., New York 21, N. Y.

Sept. 13-16—Atlantic City, N. J.
ILLUMINATING ENGINEERING SOCIETY. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

Sept. 15-17—Grand Island, Nebr.
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Yancy). Exec. Sec.-Treas., C. E. Beal, 303 Continental Bldg., Lincoln, Nebr.

***Sept. 15-17—Muskegon, Mich.**
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Occidental Hotel). Sec., T. L. Vander Velde, State Department of Health, Lansing 4, Mich.

Sept. 16-18—Salt Lake City, Utah
UTAH MUNICIPAL LEAGUE. Annual Convention (Newhouse Hotel). Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

Sept. 19-21—Roanoke, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

Sept. 19-22—Atlantic City, N. J.
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress and Equipment Show (Hotel Claridge, Municipal Auditorium). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 19-25—Edinburgh, Scotland**
INTERNATIONAL CONGRESS FOR HOUSING AND TOWN PLANNING. Headquarters, International Federation for Housing and Town Planning, Paleistraat 5, The Hague, Netherlands.

Sept. 20-21—Kansas City, Kans.
LEAGUE OF KANSAS MUNICIPALITIES. Annual Meeting (Town House Hotel). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 20-22—Nashville, Tenn.
AMERICAN WATER WORKS ASSOCIATION—Kentucky–Tennessee Section. Annual Meeting (Andrew Jackson Hotel). Sec.-Treas., J. Wiley Finney, Jr., 420 Sixth Ave. N., Nashville, Tenn.

Sept. 21-23—Cumberland Falls State Park, Ky.
KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (DuPont Lodge). Exec. Sec., Carl B. Wachs, McVey Hall, University of Kentucky, Lexington, Ky.

Sept. 21-23—Dayton, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Hotel Biltmore). Sec.-Treas., M. E. Druley, 68 N. South St., Wilmington, Ohio.

Sept. 22-24—Atlanta, Ga.
GEORGIA WATER AND SEWAGE OPERATORS' SCHOOL. (Georgia Institute of Technology). Sec.-Treas., A. T. Storey, Georgia Water and Sewage Association, 1210 Hemphille Ave. NW., Atlanta, Ga.

Sept. 22-24—Detroit, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Meeting (Statler Hotel). Exec. Dir., John H. Huss, 205 S. State St., Ann Arbor, Mich.

Sept. 23-24—Milwaukee, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Meeting (Hotel Schroeder). Exec. Sec., Frederick N. McMillin, 30 E. Johnson St., Madison 3, Wis.

***Sept. 23-25—Oklahoma City, Okla.**
OKLAHOMA MUNICIPAL LEAGUE. Annual Meeting (Hotel Huckins). Exec. Dir., Daniel Fudge, P. O. Box 1214, Oklahoma City, Okla.

Sept. 26-28—Jefferson City, Mo.
MISSOURI WATER AND SEWAGE CONFERENCE. Annual Meeting (Governor Hotel). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

Sept. 26-28—Jefferson City, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section. Annual Meeting (Hotel Governor). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

Sept. 26-29—Cincinnati, Ohio
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Meeting (Netherland Plaza Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Sept. 26-30—New Orleans, La.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Roosevelt Hotel). Exec. Sec., Edward J. Kelly, 1424 K St. NW., Washington 5, D. C.

Sept. 26-30—Philadelphia, Pa.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Benjamin Franklin Hotel). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

Sept. 27-30—Kansas City, Mo.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Muehlebach Hotel). Exec. Sec., M. Mansfield Todd, Strathcona Hall, New Haven 11, Conn.

Sept. 27-30—Pittsburgh, Pa.
AMERICAN TRANSIT ASSOCIATION. Annual Meeting (William Penn Hotel). Gen. Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

Sept. 27-Oct. 1—Bretton Woods, N. H.
NATIONAL TAX ASSOCIATION. Annual Meeting (Mount Washington Hotel). Exec. Sec., Ronald B. Welch, NTA, P. O. Box 1799, Sacramento 8, Calif.

Sept. 27-Oct. 1—St. Louis, Mo.
NATIONAL RECREATION CONGRESS. Annual Meeting (Jefferson Hotel). Sec., T. E. Rivers, 315 4th Ave., New York 16, N. Y.

Sept. 28-30—Green Bay, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Northland Hotel). Sec., Leon A. Smith, City Hall, Madison, Wis.

Sept. 28-30—Mitchell, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS. Annual Meeting (Lawler Hotel). Exec. Sec., Charles E. Carl, Director, Division of Sanitary Engineering, State Department of Health, Pierre, S. D.

Sept. 28-30—Nashville, Tenn.
SOUTHEASTERN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Hotel Andrew Jackson). Sec.-Treas., Berrien W. Davis, State Highway and Public Works Commission, Raleigh, N. C.

Sept. 29-Oct. 1—Columbus, Ohio
OHIO MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., Allen E. Pritchard, Jr., 55 E. State St., Columbus, Ohio.

Oct. 3-5—Lake Placid, N. Y.
COUNTY OFFICERS ASSOCIATION OF THE STATE OF NEW YORK. Annual Meeting (Lake Placid Club). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Oct. 3-8—Baltimore, Md.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Hotel Lord Baltimore). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln, Aurora, Ill.

Oct. 4-5—Atlantic City, N. J.
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Conference (Haddon Hall). Sec.-Treas., Claude C. Fogelman, 1717 Main St., Northampton, Pa.

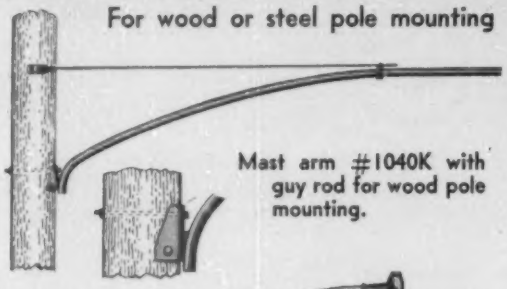
Oct. 4-6—Poland Spring, Maine
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Poland Spring House). Sec., Joseph C. Knox, 75 Tremont St., Boston 8, Mass.

(*Continued on page* 173)

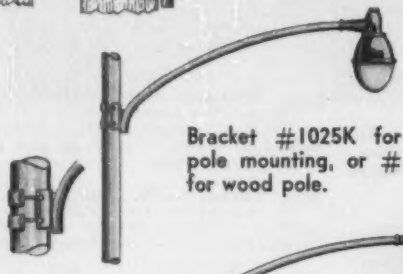
KERRIGAN *Weldforged*
Steel Brackets & Mast Arms

For Economy & Beauty

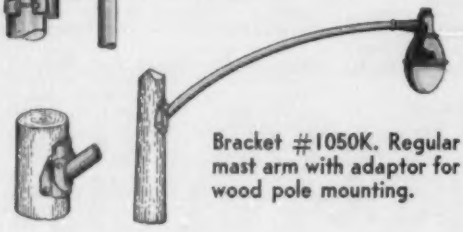
For wood or steel pole mounting



Mast arm #1040K with guy rod for wood pole mounting.



Bracket #1025K for steel pole mounting, or #1035K for wood pole.



Bracket #1050K. Regular mast arm with adaptor for wood pole mounting.

Kerrigan's complete line of brackets and mast arms are carefully engineered for easy installation and wiring. They meet all I.E.S. street lighting recommendations. So, take advantage of your wood poles now in place and brighten up your city or town NOW!

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solve your city's lighting problems. Send for our FREE catalog containing engineering data. It shows how simple installation really is.

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Ask about **SOLEXTO**
Kills grubs of turf insects —one application protects lawns for years!

dependable DOLGE
WESTPORT, CONNECTICUT

(*Continued from page 171*)

Oct. 4-7—Atlantic City, N. J.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (Ambassador Hotel). Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Oct. 6-7—Jefferson City, Mo.
MISSOURI MUNICIPAL LEAGUE. Annual Meeting (Governor Hotel). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

Oct. 6-8—St. Paul, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Meeting (Hotel Lowry). Sec., Leonard N. Thompson, 216 Court House, St. Paul, Minn.

Oct. 7-8—Des Moines, Iowa
LEAGUE OF IOWA MUNICIPALITIES. Annual Meeting (Hotel Fort Des Moines). Exec. Sec., Max A. Conrad, 303 Tampa Bldg., Burlington, Iowa.

Oct. 10-12—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Meeting (Leland Hotel). Exec. Dir., A. L. Sargent, 537 S. Fourth St., Springfield, Ill.

***Oct. 10-14—Los Angeles, Calif.**
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Meeting (Statler Hotel). Sec.-Treas., H. W. Anderson, 703 Kalamazoo Bldg., Kalamazoo, Mich.

Oct. 11-14—Cincinnati, Ohio
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Netherland–Plaza Hotel). Exec. Sec.-Ed., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 11-14—Philadelphia, Pa.
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Meeting (Bellevue-Stratford Hotel). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

Oct. 12-15—Cincinnati, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Meeting in conjunction with the FEDERATION OF SEWAGE AND WASTES ASSOCIATION Meeting (Netherland–Plaza Hotel). Sec.-Treas., W. E. Conrad, Ohio Departments Bldg., Columbus 15, Ohio.

Oct. 13-15—Cedar Rapids, Iowa
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Roosevelt). Exec. Sec., H. V. Pedersen, Marshalltown Water Works, Marshalltown, Iowa.

***Oct. 14-15—Lincoln, Nebr.**
DIESEL OPERATORS CONFERENCE. Annual Conference (Student Union, University of Nebraska). For information address Robert A. Ratner, Supervisor of Institutes, University Extension Division, University of Nebraska, Lincoln, Nebr.

***Oct. 14-16—Point Clear, Ala.**
AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION. Annual Meeting (Grand Hotel). Mang. Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

***Oct. 17-20—El Paso, Texas**
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Cortez Hotel). Sec., Leslie A. Jackson, Municipal Water Works, Robinson Memorial Auditorium, Little Dock, Ark.

Oct. 17-20—Los Angeles, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (Biltmore Hotel). Exec. Dir., Richard Carpenter, Hotel Claremont, Berkeley 5, Calif.

Oct. 18-21—Houston, Texas
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Rice Hotel). Exec. Sec., Chief Jay W. Stevens, Pacific Coast Association of Fire Chiefs, Merchants' Exchange Bldg., San Francisco 4, Calif.

Oct. 18-22—Chicago, Ill.
NATIONAL SAFETY CONGRESS AND EXPOSITION. Annual Meeting (Conrad Hilton Hotel). Gen. Sec., R. L. Forney, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Oct. 24-27—Birmingham, Ala.
AMERICAN WATER WORKS ASSOCIATION—Alabama–Mississippi Section. Annual Meeting (Tutwiler Hotel). Sec.-Treas., C. W. White, 537 Dexter Ave., Montgomery, Ala.

***Oct. 26-29—Long Beach, Calif.**
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Wilton Hotel). Sec., Henry F. Jerauld, Water Department, 1040 Manzanita, Pasadena 3, Calif.

Dec. 2-7—San Juan, Puerto Rico
INTERAMERICAN MUNICIPAL ORGANIZATION. Interamerican Congress of Municipalities. For information address Comision Panamericana de Cooperacion Intermunicipal, 351 Obispo St., Habana, Cuba.

Commercial Atlas Aids Los Angeles Administrators

By JOHN CRERAR REID

CULMINATING 15 months of research and preparation, the Los Angeles Chamber of Commerce published the first edition of the "Los Angeles Marketing Atlas" in April.

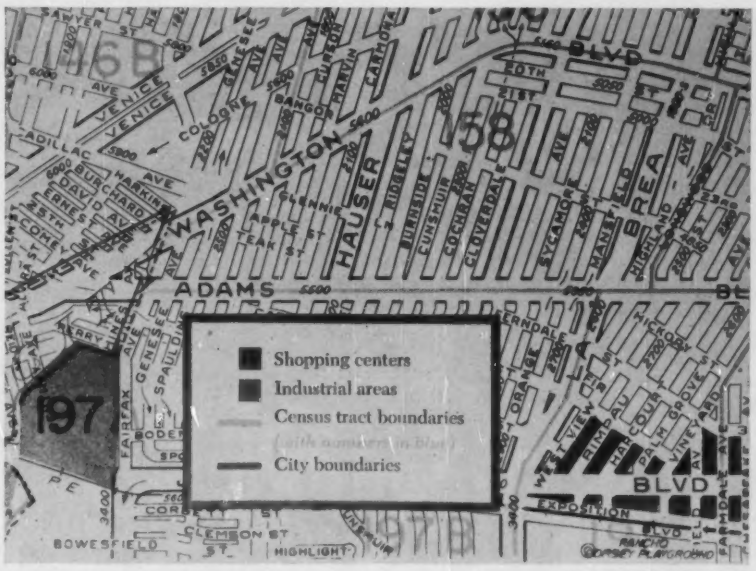
The 350-page book, 12½ inches by 11¼ inches in size, contains 120 pages of detailed maps of Los Angeles County, a complete index, some 50 pages of population statistics, economic fact summaries, and a bibliography of reliable source material.

Although primarily intended as an aid to commerce, the atlas, the first analysis of its type to be published on the West Coast, will be of great assistance to research, planning, and administration in Los Angeles County at all levels of government.

The need for a work of this kind was dictated by the development of the county into an area of multiple suburbs with a great deal of duplication of street names. The usual type of street-index system when applied to Los Angeles County was becoming increasingly voluminous and hopelessly complex.

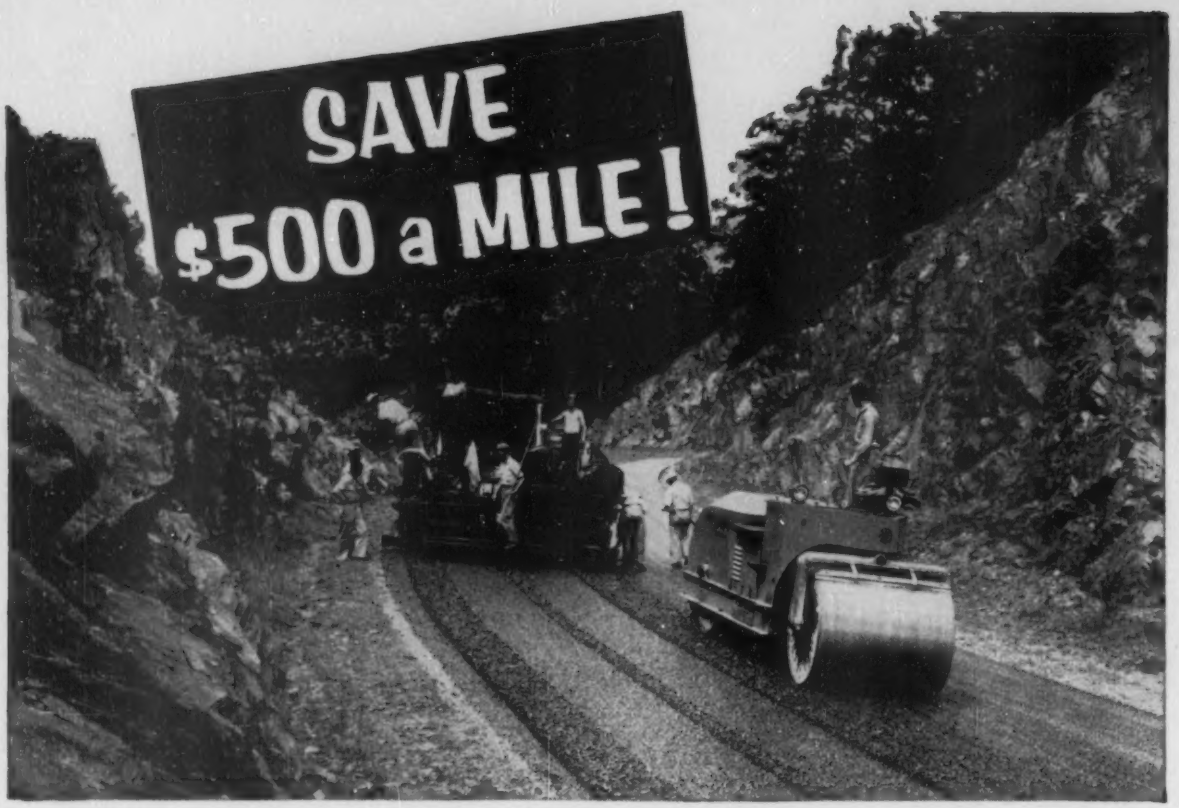
To eliminate this difficulty, indexing is based on the division of the county into 793 numbered census tracts. Population and economic statistics are grouped by census tract and are uniform in classification throughout the entire area mapped. Many of these figures are the result of previously unpublished special surveys and all are projected to April 1954.

The initial printing of 500 copies is available now to Chamber of Commerce members and to government agencies for $52.50 per copy. It may be had by nonmembers for $67.50 at a later date. The multi-ring binding feature permits piecemeal revisions to keep the atlas up to date. Complete revision once each four or five years is contemplated.



JOHN CRERAR REID PHOTO

This closeup shows the method employed in overlaying shopping and industrial area designations on a base map. Shopping areas are shown in black; industrial areas, in gray. Numbers indicate census tracts, with boundaries shown by dark line. Base maps are part of an existing series, which are individually and carefully revised as needed.



UPWARDS to $500.00 a mile could be the savings you make with the Adnun Black Top Paver, equipped with the Adnun Fluid Level. With the Adnun you can figure right on the "button" and eliminate the excess you pour into a road to be certain of meeting grade line specifications.

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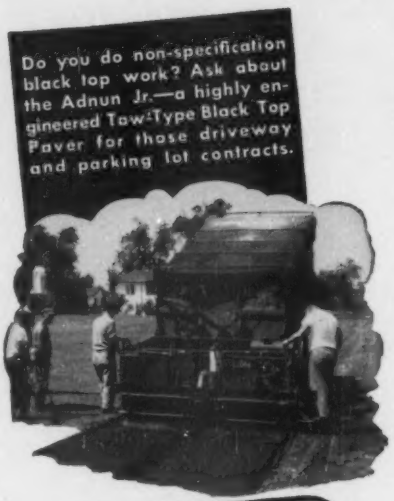
Overlapping action of the Cutter Bar Screed makes a tight joint and reduces raking. Sturdy construction eliminates the rebuilding so often necessary with other machines. Modern electric screed heating gives better heat, free from danger and the many other advantages combine to assure a fast job at lower cost.

Don't be swayed by preconceived opinions. You owe it to yourself to find out about this and other Adnun advantages. Let us tell you more about it.


Do you do non-specification black top work? Ask about the Adnun Jr.—a highly engineered Tow-Type Black Top Paver for those driveway and parking lot contracts.

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Municipal & Civic Publications

Guide to Community Action

By Mark S. Matthews. Harper & Brothers, New York. 1954. 434 *pp.* $4.

The citizen who wishes to serve his community in association with others, either as a leader or as a worker in the ranks, has now available in this *Guide to Community Action* the most practical and comprehensive handbook yet produced in the fertile field of civic and social service.

In the 80 pages that compose Part I, the author outlines in clear and concrete form the techniques of building and maintaining an effective community organization. The four chapters of this part discuss: Membership, Officers, and Committees; Meetings; Financial Administration and Fund Raising; Public Relations.

In part II there are chapters totaling 292 pages devoted to sixteen of the main subjects with which community organizations are concerned: Community Arts; Sports and Recreation; Safety and Fire Prevention; Health; Welfare; Brotherhood; Religion; International Relations; Americanism; Education; Vocational Guidance, and Rehabilitation; Labor–Management Cooperation; Conservation; Government; Community Development, and National Security.

There are also four appendices: Special Days, Weeks, and Months; Parliamentary Procedure; Sources of Films and Film Information, A Course in Effective Speech.

Each chapter of Parts I and II has a supplementary section presenting a carefully compiled list of sources of additional information and aid. The full use of such sources can be as Mr. Matthews points out, a tremendously important factor in the success of any group effort for better community living.

While addressed primarily to volunteer action in the community, there is much in this guide-book that will be found helpful by forward-looking municipal officials who welcome the intelligent cooperation of citizens' organizations.

Municipal Work Simplification

Report 123 *of Management Information Service, International City Managers' Association,* 1313 *E. 60th St., Chicago* 37, *Ill. April* 1954. 14 *pp. Available to subscribers for the Service.*

Work simplification is defined as elimination of waste of time, equipment, material, space, and human effort; and the report goes on to give methods for implementing such simplification. A Selected Bibliography on Work Simplification is also included.

Suggested Municipal Regulations For Roadside Zoning

Prepared by the State of New Jersey Department of Conservation and Economic Development Planning Section, 520 *E. State St., Trenton* 7, *N. J. November* 1953. 12 *mimeo. pp.*

The Blue Star Memorial Highway in New Jersey was the specimen highway chosen for study of ways of improving roadsides generally. The model highway zoning provisions here suggested are the result of that study.

Air Pollution Abatement Manual

Manufacturing Chemists' Association, Inc., 1625 *Eye St. NW., Washington* 6, *D. C.* 1954. *Single complimentary copies of full* 13*-chapter manual available to federal, state, and municipal officials directly charged with air-pollution control. For others,* $6.

Up-to-date research and operational practices will assist industrial and governmental personnel in achieving abatement of air pollution by the most effective and economical means. The Manual includes information on types of air pollution, legislative requirements, technical methods of handling problems, and suggestions for enlisting the cooperation of employees, industrial and public officials and the public.

Planning and Financing Capital Improvements

May 1954 *issue of* Municipal Finance. *Municipal Finance Officers Association,* 1313 *E. 60th St., Chicago* 37, *Ill.* 30 *pp.* 50 *cents. (Sub.* $1.50 *per year,* 4 *issues.)*

Because there is a great need for long-range programs in many cities and towns, and for planned financing of such programs, the Municipal Finance Officers Association decided to devote the May issue of *Municipal Finance* to the subject of capital improvements. The articles present the views and experiences of policy-making officials in small, medium, and large municipalities in the United States and Canada.

What to Do About Recessions

A Digest of a Statement on National Policy by the Research and Policy Committee of the Committee for Economic Development, 444 *Madison Ave., New York* 22, *N. Y.* 20 *pp. Single copies free.*

The complete Statement on National Policy, entitled "Defense Against Recession: Policy for Greater Economic Stability," is discussed on page 158 of the May 1954 issue of THE AMERICAN CITY. This Digest presents in an easy-to-read form the findings and recommendations of the CED. Of particular interest to our readers is the section on what state and local governments can do to counteract recessions.

Location Factors for Off-Street Parking Facilities

By John F. Hendon and Howard D. Leake. March 1954 *issue of URBAN LAND. Urban Land Institute,* 1737 *K Street NW., Washington* 6, *D. C.* 8 *pp.* $1.

According to this study, providing parking facilities for downtown workers and shoppers has become a $3,000,000 industry which competes actively with other businesses for key locations in central business districts — this in spite of the changing patterns of traffic and the activity of municipal governments in providing parking facilities.

The study also reveals that as congestion increases people tend to leave their cars further from their destinations, and that vertical expansion of parking will become more feasible in the future.

Digest of Sewerage Enabling Acts of the State of California

State Water Pollution Control Board, Room 610, 721 *Capitol Ave., Sacramento, Calif. Publication No.* 1. *Revised* 1954. 64 *pp. Single copy free. (Special quantity rates.)*

A compilation of legislation designed to aid in the study and solution of waste-disposal problems of both individuals and communities. This revised edition contains three appendices which include a condensed table comparing the various types of sewerage districts, a table outlining the procedure in the formation and financing of five types of districts, and a state-wide listing of six types of districts now providing sewerage services.

Ideas for a Better City

Compiled by Cecil Morgan. Municipal Technical Advisory Service, The University of Tennessee, Knoxville, Tenn. March 1954. 42 *pp.*

The ideas are selected from items originally published in the Technical Section of *Tennessee Town & City,* under the heading of "Notes from the Editor." They are short briefs of municipal interest, prepared as a sort of "catalog of municipal ideas," and classified under such headings as safety, public relations, finance and taxation, personnel and training, urban fringe areas, public works, traffic and parking, and fire and police.

Local Bond Sales and Interest Rates

A Guide to Marketing General Obligation Bonds of Connecticut Towns and Cities— By Beldon H. Schaffer. The Institute of Public Service, University of Connecticut, Storrs, Conn. April 1954. 30 *pp.* 25 *cents.*

This booklet has been prepared to aid local officials in planning the sale of long-term obligations to finance major capital improvements in Connecticut towns and cities. More specifically, the study is concerned with money market influences that affect municipal interest rates, relationship between available information and rates of interest, and contents of a notice of sale and a bond prospectus for general obligation bond sales.

Problems of Decentralization In Metropolitan Areas

Proceedings of the First Annual (1953) *University of California Conference on City and Regional Planning. Department of City and Regional Planning, University of California, Berkeley* 4, *Calif.* 1954. 46 *pp.* $1.

The papers included in these Proceedings cover such aspects of decentralization as transportation, fringe areas, labor patterns, tax structure, government agencies, and social effects. The principal address on "What Are the Main Problems Which Decentralization is Creating in Metropolitan Areas?" was given by Walter H. Blucher, of the American Society of Planning Officials.

The Structure of City Government in West Virginia

By Mavis Andree Mann. Bureau for Government Research, West Virginia University, Morgantown, W. Va. 1953. 50 *pp.*

This study is intended to aid charter commissions and others concerned with drafting city charters. The main part of the booklet describes various types of government—mayor-council, commission, and council-manager. In the Appendixes are contained the data for the individual cities, showing the characteristics of the mayor and the council in mayor-council cities in West Virginia, the characteristics of commission governments, and of council-manager governments in the cities concerned.

Municipal Fringe Area Problem In Alabama

By Robert T. Daland. Bureau of Public Administration, University of Alabama, University, Ala., and the Alabama League of Municipalities. 1953. 72 *pp.*

The material in this report is drawn from questionnaires filed by 50 Alabama cities and from personal interviews and data already on hand. Police, fire, public works, sanitation and refuse collection, recreation, education, planning, water, power, licenses, and other fringe activities are discussed and some tentative conclusions drawn.

Forms of City Government In Connecticut

By Max R. White. Institute of Public Service, University of Connecticut, Storrs, Conn. Feb. 1954. 54 *mimeo pp.* 50 *cents.*

This publication (along with two other monographs—Forms of Town Government in Connecticut, and Units of Local Government in Connecticut) is designed to assist students of government, public officials, and citizens generally to a better understanding of local government in Connecticut.

Beginning with comments on some general aspects of city government that are not significantly related to the mayor-council, council-manager, or selectmen and town-meeting type of government, the monograph goes on to describe 29 individual governments that fall into the above categories.

A Venture in International Understanding

Bureau of Adult Education, New York State Education Department, Albany, N.Y. Bulletin No. 9. 1954. 55 *pp.*

The Community Ambassador idea—that of sending an outstanding young adult to live in a foreign community as a representative of an American community—has proved most successful in promoting international understanding and in making one community think of another in a different land as a place of people, homes, and similar interests. This manual is a guide to civic organizations and individuals who may be interested in promoting the ambassador project in their community. It tells also how to train the young ambassador to do a good job.

Living in New Towns

The January 1954 *issue of "Town and Country Planning," 28 King St., Covent Garden, London WC 2, England.* 80 *pp.* 1 *sh.* 6*d.*

The January issue of *Town & Country Planning* brings us up-to-date on conditions in England's highly successful New Towns. Financial factors, community life, gardens, education, playing fields, shops, social facilities, rents, industry, and other problems of New Towns are discussed in the various articles included in this issue.

Legal Problems in Florida Municipal Zoning

By Ernest R. Bartley. Reprinted from University of Florida Law Review, *Symposium on Florida Municipal Law (Fall,* 1953) *for Public Administration Clearing Service of the University of Florida, Gainesville, Fla.* 29 *pp.*

This article covers the validity of zoning ordinances, municipal zoning procedure, the zoning commission, notice and hearing, boards of adjustment, judicial review of board of adjustment actions, exhaustion of administrative remedies, and esthetic considerations.

Urban Redevelopment—A New Approach to Urban Reconstruction

By Paul A. Pretzschner. From "Social Research," Winter 1953, 66 *West 12th St., New York* 11, *N. Y.* 27 *pp.* $1 *single copy of magazine.*

For anyone who is not quite sure about the exact scope and meaning of such terms as urban redevelopment, rehabilitation, and blight, as presently defined, this article will be a boon. Organization, procedures, financing, problems, and legislation for urban redevelopment are also discussed.

The Passing Scene

The Travelers Insurance Companies, Hartford, Conn. 1954. 29 *pp. Distributed free.*

Statistics from the 20th of the annual traffic accident data booklets prove that excessive speed was the most dangerous driving mistake in 1953. They also show that drivers under 25 years of age were involved in about 25% of the year's fatal accidents although they constitute only about 15% of the total of drivers, and that "jay walking" is still the chief cause of pedestrian deaths and injuries. Such grisly facts are brought into sharp focus by the method of presentation and by the satirical cartoons in this booklet.

Uniform Crime Reports For the United States

Issued by the Federal Bureau of Investigation, U. S. Department of Justice, Washington 25, *D. C.* 1954. 120 *pp.*

The 1953 annual Uniform Crime Reports bulletin, based upon data submitted to the FBI by law enforcement agencies throughout the U. S., reflects an increase in major crime, urban-rural crime trends, seasonal variations in crime, value of property stolen, arrest data, and the role of youth in crime.

The Role of the Church In Community Conservation

Prepared by The Church Federation of Greater Chicago, with the cooperation of The Office of the Housing and Redevelopment Coordinator, 69 W. Washington St., Chicago 2, *Ill.* 1954. 10 *pp.*

This report summarizes talks presented at a Special Conference on Neighborhood Conservation held under the auspices of The Church Federation of Greater Chicago on April 27, 1953. It is felt that churches can provide the moral and spiritual motivation to sacrifice for the common good, and that they can arouse the community to the need for facing local problems.

A supplement records developments in Chicago's neighborhood conservation program as of January 1954.

Zoning Administration and Enforcement

February 15, 1954. 29 *pp.*

In order to assist local officials to protect community interests without encroaching unduly upon individual rights, this bulletin discusses three phases of the problem: Washington litigation concerning zoning; the responsibility of the building inspector in the enforcement of the zoning ordinance; and other methods for enforcing the zoning ordinance.

The Road Back

Reprinted from the Chicago Daily News *by the Metropolitan Housing and Planning Council of Chicago, 69 W. Washington St., Chicago* 2, *Ill.* 1954. 22 *pp.* 50 *cents.*

A dramatic series of exposes of shocking slum conditions in Chicago, originally published by the *Chicago Daily News*, is here reprinted in booklet form. The articles name some of those responsible for and thriving on the horrifying conditions pictured, and they show how slums are made.

A United Effort on a Common Problem

Pennsylvania Economy League, Inc., 1616 Market Street National Bank Bldg., Philadelphia 7, *Pa. February* 1954. 78 *pp.*

The report tells how the school boards of Glenolden and Norwood, Pa., under the direction of the League, jointly analyzed their future school building needs.

Insurance Programs in Michigan Municipalities

Information Bulletin No. 72 *of the Michigan Municipal League,* 205 *S. State St., Ann Arbor, Mich. March* 1954. 79 *pp.* $3.50.

The data presented in this Bulletin were compiled from replies to questionnaires sent in by 89 cities and villages with populations over 5,000. The questionnaires dealt with fire and casualty insurance, motor-vehicle-liability insurance, public liability, workmen's compensation, and burglary and theft insurance. Details regarding the type of insurance, cost, and risk experience of responding municipalities are presented in the appendices. None of the practices presented are considered by the League to be a "model," for each municipality should design an insurance program that best suits its needs.

The Large Town and the Small Municipality

Their Strength and Their Weakness. *International Union of Local Authorities, 5 Paleisstraat, The Hague, Netherlands.* 1953. 239 *pp.*

This book of Reports prepared for the Vienna Congress of the International Union of Local Authorities, held in June 1953, summarizes replies given by 20 countries to questions on functional and territorial decentralization; on inter-municipal cooperation for a specific purpose and the formation of "districts" equipped with various powers; and on means of intervention regarding the size of large towns on the one hand, and the amalgamation of municipalities on the other.

The Impact of the Eisenhower Administration Upon Cities

An Address by Charles S. Rhyne. Florida League of Municipalities, 407 Exchange Bldg., Jacksonville, Fla. 1953. 8 *pp.*

Mr. Rhyne's address before the annual convention of the Florida League of Municipalities last November gives a nonpartisan analysis of the changes being made by the Eisenhower administration—the emphasis upon government by consultation, upon economy at all levels of government, upon tax reduction, upon the importance of Congress, and the new approacaes to foreign affairs.

Recreation for Your Home Town

Prepared by Bureau of Community Service, College of Arts and Sciences, University of Kentucky, Lexington, Ky. March 1954.

The steps for developing a community recreation program are presented in outline form in the main part of this study and in the Appendix there are various forms, questionnaires, Kentucky's enabling legislation, and reference sources.

City Planning in Soviet Russia

By Maurice F. Parkins. University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill. 1954. 257 *pp.* $6.

This substantial account of Soviet city planning, its theory and practice, from 1917 to the present, draws primarily from original documents in Russian. The author has related the principles and practice of urban development to the general political and economic background and the intellectual climate of each period under discussion.

The author considers in detail the three marked stages which show the evolution of planning through a sequence of technical and ideological periods. The third phase discussed concentrates on the restoration of hundreds of cities and villages destroyed during the war, with its significant rebirth of pride in national heritage, evidenced in elaborate plans for memorial squares, parks, and statues.

The book also considers the organizational setup of city planning of the Soviet Union, the training of architects and planners, the development of housing and the building industry, and current trends in urbanization and new city forms. There is an extensive interpretive bibliography of the entire field of Russian city planning, architecture, housing, and municipal economy which follows the text.

Architectural Control in Residential Districts

Municipal Regulations of Exterior Home Design—By Robert D. Sundby. In The Municipality *of March* 1954. *League of Wisconsin Municipalities, 30 East Johnson St., Madison 3, Wis. 3 pp. 25 cents.*

The legality of architectural control based on esthetic considerations is the topic under discussion in this article. Since architectural control is still in its experimental stage, the author cites analogous zoning restrictions with the thought that from these cases it may be possible to predict the ultimate path the courts will follow.

Neighbors in Action

A Manual for Community Leaders—by Herbert A. Thelen and Bettie Belk Sarchet. Human Dynamics Laboratory, Department of Education, University of Chicago. 1954. 70 *pp.*

The block idea—organizing its citizens for comunity action—is an effective way of preventing neighborhood decay. This manual describes how to get the block organized and a program going, types of block projects that will prevent neighborhood deterioration, and how the block program may be developed by a community-wide organization.

Principles of Real Estate

Third Edition—By Arthur M. Weimer and Homer Hoyt. The Ronald Press Company, 15 E. 26th St., New York 10, N. Y. 1954. 627 *pp.* $6.50.

This up-to-date third edition of the introduction to the subject of real estate and land economics, first published in 1939, has been broadened to include rural as well as urban real estate. The authors aim to give the reader an understanding of the major forces that affect real property and the real estate business, of the principles that explain changes in property incomes or in business practices. They stress also the relationship of the field of real estate to the general and economic objectives of our society.

The production of real estate resources, including subdividing and building activities, the marketing of properties and property services, and the principles and methods of valuation are among the topics discussed. Selected cases and problems are presented to provide training in applying general principles to specific situations.

Proceedings—1952 and 1953 Institutes for Municipal Assessors

Assessors' Section of the League of Wisconsin Municipalities, 30 East Johnson St., Madison 3, Wis. 1954. 126 *pp.* $2.

In this booklet are reproduced some of the papers presented at the 1952 training courses for municipal assessors held at Wayland Academy in Beaver Dam, September 3-5, and at the 1953 institute held in Milwaukee on December 10-11. Uniform real property assessments, residential and commercial valuation, the systems used by various Wisconsin municipalities, court decisions, adjusting personal and real property values, assessment of "white elephant" homes, motels, converted flats and apartments — are among the topics discussed.

Steps to Cooperative Housing

Cooperative League of the U. S. A., 343 S. Dearborn St., Chicago 4, Ill. 12 *pp. Illus. Copies available also from F. C. H. Company, Inc., 327 Lexington Ave., New York 17, N. Y. 35 cents.*

This is a packed-full, useful, authoritative booklet that answers many questions about cooperative housing, and about the methods of organizing a cooperative. The booklet is divided into three sections. Section One outlines some of the housing problems faced by Americans today, defines cooperative housing, and describes ways in which it has been used. Section Two tells of the advantages of co-op housing and also cautions on some of the pitfalls that may be encountered in orginizing a cooperative. Section Three tells of several ways to use cooperative methods in housing, steps to follow, help that can be enlisted, and organizational and operational methods. The booklet is notable for its sound practical approach to cooperative housing accomplishments and possibilities.

Urban Land Problems And Policies

Housing and Town and Country Planning Bulletin No. 7. United Nations, New York. U. N. Publication Sales No.: 1953. *IV* 22. 182 *pp.* $1.75. *Order from International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N. Y.*

In terms of scope, approach, and down-to-earth specific examples, this scholarly yet readable and interesting bulletin is an outstanding contribution to the literature in the field. It contains observations, findings, and recommendations on urban land problems and policies throughout the world that should interest every municipal official and civic leader. The report clearly shows how much local officials in all countries learn from each other in practical administration.

The bulletin was prepared under the editorship of Charles Abrams, who also wrote the first six sections, the findings, and the conclusions. Separate chapters by experts from various countries appear on the urban land policies of Belgium, Denmark, France, India, Israel, Latin America, the Netherlands, Norway, Singapore, Sweden, the U. S. S. R., the United Kingdom, and the United States. Case studies on the timing of a housing scheme appear for the cities of Singapore, Liverpool, New York, and Celje (Yugoslavia).

A check list and comprehensive bibliography and name index makes the bulletin exceptionally valuable for the researcher or operating official.

Prisons in Transformation

The May 1954 *issue of* The Annals *of the American Academy of Political and Social Science, 3937 Chestnut St., Philadelphia 4, Pa. 162 pp. plus book review section.* $2 *per copy.*

The authors of the articles in this volume are active and prominent in the field of penal management and are among those who are trying to reorganize methods so that better advantage may be taken of our growing knowledge of human behavior in attempting to rehabilitate prisoners. Some of the articles, including one on "Catchall Jails," by Roy Casey, describe present bad conditions; others outline plans and programs, and a third group tells of prison reform abroad.

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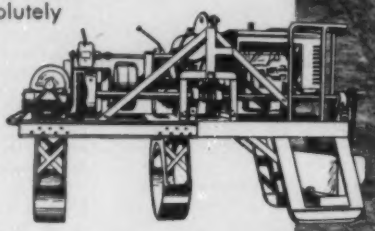

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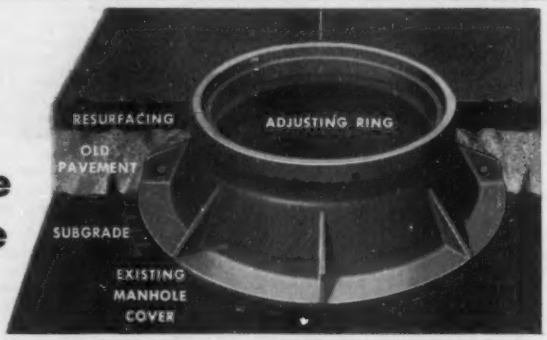

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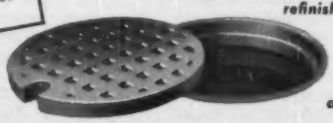

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Zoning Law and Practice

By E. C. Yokely, LL.B. The Michie Company, Law Publishers, Charlottesville, Va. 1953. *Two volumes,* 474 *pages.* $25.

This is the second edition of a work which, because of its comprehensive coverage of the whole field of zoning, should be of value to anyone — city official, teacher, student, planner or layman—concerned with the practice of zoning. With a great deal of practical material, the two volumes will be particularly helpful to the city and town officials who are concerned with the many details of preparing and administering zoning ordinances.

Volume I outlines the history and legal backgrounds of zoning, contains an analysis of the context of an ordinance and explains the details of enacting, amending, and enforcing an ordinance. Other chapters in the first volume cover the following subjects: Permits, the Planning Commission, Procedure Before the Board of Appeals, the Powers of the Board of Appeals, Nonconforming Uses, Area and Height Requirements, Appellate Procedure and Judicial Construction. Volume II covers Injunction and Mandamus, Urban Redevelopment, Airport Zoning, Off-Street Parking, and Special Subjects of Zoning Legislation and Forms.

This edition is extensively revised from the first edition which appeared in 1948. Of particular interest are three new chapters on The Planning Commission, Urban Redevelopment, and Off-Street Parking. While the Planning Commission chapter is directed mainly toward an explanation of the proper relationship between planning and zoning, it also contains material on subdivision regulations and the forms of municipal planning acts and subdivision control ordinances.

Because what can and cannot be done in zoning practice is constantly being formulated and defined in the courts, the two volumes are interlaced with recent and pertinent court decisions.

12 Districts Get Together in Seeking a Solution to School Problems

Prepared by The Montgomery County Branch of the Pennsylvania Economy League, Inc., Norristown, Pa., February 1954. 80 *pp.*

At the request of the school boards of nine districts, the Pennsylvania Economy League undertook a study to determine how best to utilize the present school buildings in the area and what the financial impact of the jointure would be upon each of the component districts. This report summarizes the factual information collected and offers the conclusions and recommendations of the League. The statistical information contained in the Appendix will be valuable as a guide for future long-range planning.

The Government Public Relations Bookshelf

By Eric Carlson. Government Public Relations Association, 1313 *E. 60th St., Chicago* 37, *Ill. June* 1954. 11 *mimeo. pp.* $1.

This is a "working" bibliography prepared for government public relations officials as a membership service of GPRA. In addition to background books, the bibliography covers special aspects such as public relations for community organizations, for municipalities and their various departments. It also covers publicity and public relations techniques.

The Planner

Vol. 1, *No.* 1. *May* 1954. *Buffalo and Erie County Planning Association, Inc.,* 903 *Ellicott Sq., Buffalo* 3, *N. Y.* 4 *pp.*

This newsletter will be issued on a flexible schedule to allow prompt publication of important material. It is intended to fill the need for some sort of clearing house of planning information in the Buffalo and Erie County area.

Other Reports Received

Administration and Government

GARDEN CITY, KANS.—A Progress Report of 1953 Garden City Municipal Government. Submitted by Robert Peart, City Manager. Illus. Newspaper form.

GEORGIA — Summary of Georgia Laws Affecting Local Government. Bulletin of University of Georgia, Study Number Five. Obtainable from Bureau of Public Administration, the University of Georgia, Athens, Ga. 1953. 25 pp. $1. Free to Georgia Public Officials.

SOUTH BEND, IND. — Civic Cinema. A fact and figure picture of your South Bend and St. Joseph County Government. Prepared by South Bend Civic Planning Association, Inc., 117 E. Madison St., South Bend, Ind. Unpaged.

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GENERAL—Federal, State, Local Relations. A Selected Bibliography. May 1954. Prepared for American Municipal Association and Council of State Governments by the Joint Reference Library, 1313 E. 60th St., Chicago 37, Ill. 39 pp. $1.

Annual Reports

COLORADO SPRINGS, COLO.—Annual Report 1953. Presented by John N. Biery, City Manager. Illus. Tables. 57 pp.

GREENVILLE, S. C.—A Progress Report of the City, 1953. Submitted by Gerald W. Shaw, City Manager. Newspaper form. Illus. 8 pp.

HEARNE, TEXAS—Eighty-Third Annual Report. Available from Office of City Manager, N. L. McCarver. Illus. Tables. 35 pp.

MASSACHUSETTS—The Trustees of Reservations Annual Report, 1953. A Trust to Preserve for Public Enjoyment Beautiful and Historic Places in Massachusetts. Obtainable from Office of the Trustees, 50 Congress St., Boston 9, Mass. Illus. 69 pp.

NEW ORLEANS, LA.—1953-54 Annual Report of the Mayor, De Lesseps S. Morrison. Illus. 64 pp.

——Annual Report, 1953. Civil Service Department. Illus. Tables. 16 pp.

NORTH ADAMS, MASS.—1953 Annual Report. Robert H. Harp, City Manager. Illus.

OGLESBY, ILL.—23rd Annual Report. May 1, 1953 to April 30, 1954. Report prepared by Edward Hand, City Clerk. Illus. 48 pp.

WAYNE COUNTY, MICH.—Fiscal Year 1953. 47th Annual Report. Board of County Road Commissioners, Detroit, Mich. Map. Tables. Illus. 120 pp.

WICHITA, KANS.—City Annual Report. Published by *The Wichita Sunday Eagle*. Newspaper form. Illus. 8 pp.

WILMINGTON, DEL.—Annual Report and Statement, June 30, 1953. Available from Office of the Mayor. Illus. Tables. 98 pp.

Finance and Taxation

BEVERLY HILLS, CALIF.—Report from your City Council on Bond Issue Election. Second in a Series of Progress Reviews. Vol. I, No. 2. Feb. 1954. Illus. Brochure.

NEW LONDON, CONN.—Financial Reports for the Year Ending September 30, 1953. Tables. 57 pp.

QUEBEC, CANADA—1952 Municipal Statistics. Published by authority of the Honorable J. Paul Beaulieu, Minister of Trade and Commerce. Tables. Published in French and English. 137 pp.

GENERAL—Summary of State Government Finances in 1953. For sale by the Bureau of the Census, Washington 25, D. C. Tables. Graphs. 21 pp. 15 cents.

——1953 Survey. Available from Chamber of Commerce of the United States, Chamber of Commerce Service Department, Washington, D. C. Tables. 44 pp. $2.

Laws and Legal Decisions

NEW YORK, N. Y.—The Legal Aid Society, 1876-1951—By Harrison Tweed. Available from National Legal Aid Association, 328 Main St. E., Rochester 4, N. Y. Graphs. 122 pp.

GENERAL—Digest of 1954 Laws Affecting Towns. Submitted by Edward F. N. Uthe, Executive Secretary of the Association of Towns of State of New York, 91 State St., Albany, N. Y. 48 pp.

Parks and Recreation

BERGEN COUNTY, N. J.—Bergen County's Park Program. Seventh Annual Report of the Bergen County Park Commission. 1953. Illus. Unpaged.

UNITED STATES—Golf Course Development in the U. S. Compiled by the National Golf Foundation, Inc. Mimeo. Unpaged.

Planning, Housing, and Zoning

BOULDER, COLO.—Health, Safety and Property Values, for the Protection of Zoning Ordinance and Subdivision Regu-

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lations. March 1954. Map. 28 pp.

BERGEN COUNTY, N. J.—1953 Annual Report of Progress. County Planning Board, Hackensack, N. J. Map. Graph. 15 pp.

CHICAGO, ILL.—Relocation in Chicago 1953. Office of Housing and Redevelopment Coordinator. Tables. 6 pp.

LOUISVILLE, MISS.—Surveys Its Needs. A Report to the Citizens. Community Series No. 2. Social Studies. April 1954. Mississippi State College, The Social Science Research Center, State College, Miss. Charts. Graphs. 21 pp.

NEW YORK, N. Y.—Tenant Relocation at West Park. A report based on field interviews by Women's City Club of New York, 277 Park Ave., New York 17, N. Y. Single copies available free upon request. Appendix. 19 pp.

ILLINOIS — City Planning and Landscape Architecture at the University of Illinois: An Historical Record, (1868-1954). By Karl B. Lohmann. Department of City Planing and Land-Landscape Architecture. College of Fine and Applied Arts, Urbana, Ill. May 1954. 14 pp.

GENERAL — Summary of the Urban Community Conservation Act By Sections. Available from Office of the Housing and Redevelopment Coordinator, Washington, D. C. August 28, 1953. Mimeo. 4 pp.

——Joint Statement on Neighborhood Conservation by the Community Conservation Board, the Neighborhood Redevelopment Commission, the Office of the Housing and Redevelopment Coordinator, and the Neighborhood Conservation Commission, of Chicago, Ill. April 1954.

Public Utilities

KANSAS CITY, KANS.—1953 Annual Report of the Board of Public Utilities. Illus. Graphs. 38 pp.

Sewage

KENOSHA, WIS.—1953 Annual Report for the Sewage Treatment Plant. January 31, 1954. Graphs. Tables. 10 pp.

Traffic

CLIFTON, N. J.— Zoning for Parking. A Report to the Planning Board, on the Proposed Amendment of Clifton's Zoning Ordinance to Require Adequate Parking Areas on Private Property. December 1953. Available from Passaic-Bergen Community Planning Association, 143 Prospect St., Passaic, N. J. Mimeo. 7 pp. 25 cents.

NEW JERSEY-NEW YORK — Joint Report on the problem of providing improved mass transportation between the City of New York and New Jersey, Westchester, Long Island. March 3, 1954. Presented by New York Metropolitan Rapid Transit Commission and New Jersey Metropolitan Rapid Transit Commission, 15 Broad St., New York 5, N. Y. Graphs. Tables. 101 pp.

Water Supply and Treatment

MARION, IND.—City Water Works. Report of Operations for the Years 1952-53. Illus. 22 pp.

WINNIPEG, MANITOBA—Annual Report for the Water District of Greater Winnipeg for Year Ended December 31, 1953. Graphs. Tables. 37 pp.

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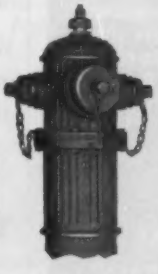

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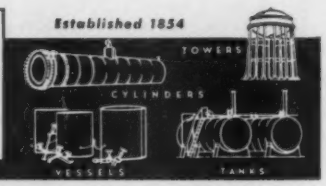

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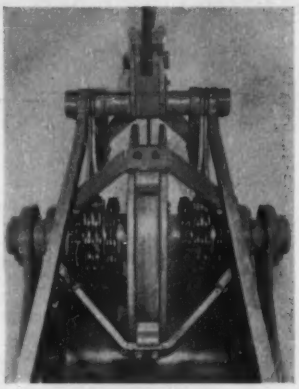

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THE KANSAS CITY KANSAN
PHOTO BY ROBERT SNAIR

F-M's smallest pump, a ¾-inch model, is shown at the prededication tour of the Kansas City pump works. In the foreground (left to right) are: Robert H. Morse III, manager of the Fairbanks-Morse Beloit, Wis., works; Robert H. Morse, Jr., president of the firm; George S. Conover, vice-president of THE AMERICAN CITY; and Henry J. Barbour, F-M public relations manager. Part of an F-M 116-inch pump, used to maintain water balance in the Florida Everglades, is pictured in the background.

Anything that will flow either as a liquid or in a liquid, Fairbanks-Morse is prepared to pump. So said Robert H. Morse, Jr., president of this 124-year old company at a recent 4-day ceremony opening the company's new Kansas City, Kan., pump works.

To prove their president's statement, F-M engineers proceeded to pump, undamaged, live fish, apples, oranges, carrots, and green beans, through the impellers of their non-clog pumping units.

The new plant has been geared to produce an annual output of pumps great enough to move 35 billion gallons of water or other fluids per day. It will produce pumps known as "built togethers," side suction, trash, angle-flow, split case, and steam and power reciprocating types. Sizes range to and include pumps large enough to handle a 16-inch flow. The plant will also manufacture "Z" engines ranging from 2- to 30-hp.

Fairbanks-Morse selected Kansas City, Kan., for the site of the new plant because of its central location, its easy access to transportation, a favorable labor market and tax policy, and the "Kansas City spirit," Mr. Morse explained during the dedication. The plant occupies a 38½-acre site. When in full operation it will employ 900 people.

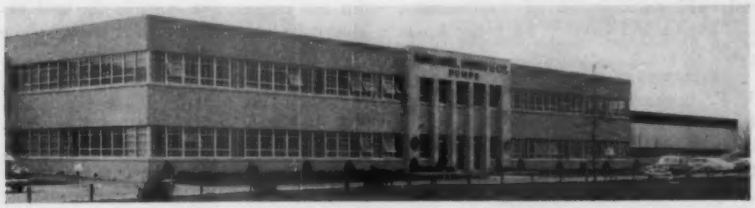
The plant has a completely mechanized foundry with tall cupolas, three-story core furnaces, large electric furnaces, and a system of pipes that blows sand from one location to another as though it were a fluid. The foundry can turn out 82 tons of casting per day, and boasts an exceptional cleanliness.

Two test laboratories in the plant check the performance of all pumps and engines before shipment. One of the laboratories is assigned to those pumps smaller than 10 inches; the other will be used mainly for experimental work, but can test pumps from 10 to 16 inches.

A forum on centrifugal pump problems formed a distinctive part of the dedication ceremony. Some 1,000 of the nation's foremost hydraulic engineers and technicians took part in this unusual discussion. Chairman of the day's program was Dr. Francis M. Dawson, Dean of Engineering at the State University of Iowa. Also appearing on the program were Dr. Richard Folsom, director and head of research of the engineering department of the University of Michigan; Gail A. Hathaway, former president of the American Society of Civil Engineers and special assistant to the chief of engineers, Department of the Army; Dr. Robert T. Knapp, professor of hydraulic engineering at the California Institute of Technology; Dr. James W. Daily, associate professor of hydraulic engineering, Massachusetts Institute of Technology; Clement P. Linder, chief engineer, South Atlantic Division of the Corps of Engineers; Prof. Philip F. Morgan, State University of Iowa; Ireal A. Winter of the U. S. Bureau of Reclamation; and Dr. George F. Wislicenus, chairman of the mechanical engineering department of Johns Hopkins University.

FAIRBANKS, MORSE AND CO., originally known for its scales, which still comprise a large portion of the company's business, is now noted for a wide variety of engineering equipment. This includes the F-M opposed piston diesel engine, stationary and marine diesels, diesel locomotives, municipal electric plants, electric motors and generators, home water systems and farm equipment, and industrial pumps. One of the eye-catching exhibits at the dedication was a big, 116-inch pump, one of three that will be used in Florida Everglades work, able to pump 360,000 gpm, and made at the

(*Continued on page* 184)



New Fairbanks-Morse Kansas City pump works will employ some 900 people.

(Continued from page 183)

company's Beloit plant. This was contrasted with a tiny ¾-inch pump, the smallest to be manufactured at the Kansas City plant. The company also operates factories at St. Johnsbury, Vt.; Pomona, Calif.; St. Louis, Mo.; Three Rivers, Wis.; East Moline, Ill.; Freeport, Ill.; Stuttgart, Ark.; and Tlalnepantla, Mexico.

The organization received its start at St. Johnsbury when Major Joseph Fairbanks and his son, Thaddeus, set up a gristmill and sawmill on a 5-acre tract on Sleeper River in 1815. Later the invention of the double-A lever system of the modern scale catapaulted the enterprise into a world-wide market in 1830. The Beloit, Wis., works, which began in 1885, is the largest and most diversified of the company's activities. The plant makes diesel-electric locomotives; diesel and dual-fuel engines for stationary, marine, and portable applications; large electric motors; power generating electrical equipment; magnetos; gas engines; sewage and trash pumps, and other types of equipment.

Low-Cost "Sensimatic"

Latest addition to the Burroughs' Sensimatic line of bookkeeping and accounting machines is a low-cost ($1,550) machine for municipal departments that ordinarily buy machines for one specific

Sensimatic "50," the Burroughs Corporation's low-cost automatic bookkeeper.

bookkeeping operation. Among its features are automatic 15-inch front-feed carriage, two crossfooters, 99,999,999.99 listing and 999,999,999.99 totaling capacity, and original ledger and statement posting in one operation.

For complete information on the new Sensimatic machine, write BURROUGHS CORP., DETROIT 32, MICH., or you may use the Post Card on the colored page in this section. Circle No. 919.

Phoenix Host to IH Power "Roundup"

C. E. Jones, center, assistant sales manager of the Industrial Power Division, and I. P. Payne, Industrial Power sales manager, look on as Harold T. Reishus, vice-president of the International Harvester Co., and executive head of the Division, takes the wheel of the new International 2T-75 earthmover.

More than 600 International Industrial Power distributors from the United States and 24 foreign countries gathered in Phoenix, Ariz., recently, for the International Industrial Power "Roundup."

The "Roundup" was held at the 4,200-acre Phoenix Proving Grounds of the INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL., and was officially opened by Harold T. Reishus, vice-president and head of the company's Industrial Power Division, and by Sales Manager I. P. Payne.

Included in the 3-day ceremony was a parade of the entire International line of earthmoving and materials handling machines, among them units made by the Frank G. Hough Co., a subsidiary of International Harvester. Featured were high-speed rubber-tired earthmovers, a variety of bulldozers with tilt, angle and pitch-adjusting features for each International crawler tractor, scrapers, and the new TD-24 with its drawbar hp increased to 155. A torque-converter version of the TD-24 was also introduced, and featured a 200 hp diesel engine.

Succeeding days of the "Roundup" were devoted to demonstrations of the equipment, a special luncheon and dinner, and talks delivered by the various department heads of the Industrial Power Division. Other speakers were M. F. Peckels, advertising manager, and International Harvester President John L. McCaffrey.

Last minute instructions are given by John Drott, vice-president of the Drott Manufacturing Co., Milwaukee, Wis., as his crew of operator-demonstrators prepares for a precision demonstration of International-Drott products.

Adequate Standby Power For Water, Sewage Plants

Provide the water and sewage plants in your community with better standby power, by installing a new 172 cubic inch, 4-cylinder industrial engine made by the Ford Motor Co. Operating with only 172 cubic inches of displacement, this engine will develop 61 brake hp at 2,800 rpm.

Advantages of the new engine, reports J. F. Bachman, manager of the Ford Division's Industrial Engine Department, include a modern large bore, short stroke, low friction, and overhead valve design. The 3.90-inch bore is combined with a short 3.60-inch stroke to cut piston travel, friction, and fuel expenses.

A deep-skirt crankcase provides the unit with greater rigidity, and the precision molded alloy iron crankshaft is fully balanced in motion before it is installed in the engine. Free-turn intake and exhaust valves permit even wear, while helping to maintain high compression, and reducing the possibility of sticking valves.

Write the Ford Division of FORD MOTOR CO., P. O. BOX 638, DEARBORN, MICH., for complete information, or you may use the Post Card on the colored page in this section. Circle No. 923.

Why a City Needs Water Meters

Some answers supplied by the Badger Meter Mfg. Co., Milwaukee 45, Wis.

WATER METERS

—will lower the cost of water to a large percentage of the consumers.
—will prevent water famine during dry seasons.
—will prevent at least 75% of the consumers having to pay for the extravagant waste of the other 25%.
—will absolutely prevent water waste.
—will make every customer a self-interested guardian of the water supply.
—will permit vast quantities of water now uselessly wasted, being utilized for sprinkling, fountains and other beneficent and beautifying purposes.
—will compel each and every customer to pay for the exact amount of water used or wasted.
—will enable the Water Department to deal justly and impartially with all.
—will enable Water Department officials to concentrate on furnishing *better* instead of more water.
—will enable the department to equitably adjust water rates.
—will lower the operating cost of the water works.
—will reduce the quantity of water pumped without depriving the consumer.
—will prevent excessive wear on pumping equipment.
—will enable the charge to consumers for water to be based on the exact cost of furnishing it.

WATER METERS

—will reduce the cost of fuel at the pumps.
—will prevent the mains and conduits from being over-taxed.
—will greatly increase the efficiency of the whole water system.
—will render unnecessary expensive extensions to the water system for years to come.
—will make fire protection more efficient by increasing the water pressure in the mains.
—will make necessary better plumbing and thus insure more sanitary and healthful conditions in the community.
—will allow the money now being spent for supplying excessive quantities of water being diverted to more useful channels.
—will prevent consumers from letting the water run all night to prevent freezing unless they are willing to pay for the added usage.
—will discourage the too common practice of allowing the water to run constantly during hot weather to keep it cool.
—will permit of the money that otherwise would go for extensions being used for filtration or other purposes.
—will enable the Water Department to determine accurately just the amount of water being used by domestic, manufacturing, public and other services.
—will permit the Water Department to supply a greater number of consumers, with a consequent increase in revenue, by reducing the per capita consumption.

RODDING-CLEANING MACHINES

method of Sewer Pipe Cleaning and Water Main Cleaning

Saves

Time, Money, Labor and Maintenance . . .

and cleans pipe 2" to 48"

Rodding-Cleaning Machines also adapted for pulling power lines through conduits. ALSO for telephone duct rodding.

WRITE TODAY for further information

Rodding-Cleaning Machines, Inc.
7827 Melrose Avenue
Los Angeles 46, Calif.

SAFE-T-CONE

ALL-RUBBER TRAFFIC GUIDES ®

Patent Pending

for EFFICIENT TRAFFIC CONTROL

During emergency street repair or the traffic rush hour . . . Safe-T-Cones are constantly on duty . . . guiding traffic safely thru congested areas. Used by traffic engineers from coast to coast, Safe-T-Cones are the answer to modern traffic problems. Available in two sizes, 18 inch and 28 inch, painted or reflectorized.

Write for complete information.

RADIATOR SPECIALTY CO.
CHARLOTTE, NORTH CAROLINA
IN CANADA: RADIATOR SPECIALTY CO., LTD., TORONTO

2011

BORE with HYDRAUGER

(EARTH BORING MACHINE)

Designed for maximum control of the reamer. Earth along the pilot bits acts as a bearing to steady the reamer assuring an accurate hole.

FREE BOOKLET.. SEND COUPON BELOW

HY-25D

HYDRAUGER CORP., LTD. 681 MARKET ST. SAN FRANCISCO

Please send, without obligation to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME_____ ADDRESS_____

CITY_____ STATE_____

NATURAL RUBBER-ASPHALT ADDITIVE

MEALORUB

MEALORUB is the authentic natural rubber powder used in most test roads throughout Canada and the United States.

MEALORUB is available competitively—Immediate delivery—Guaranteed Freeflowing.

MEALORUB is 90 to 95% pure natural rubber. Lasting results as proven by actual roads now in use over fifteen years—not based on lab tests alone.

For Offers Please Apply To:

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120 WALL STREET, NEW YORK 5, N.Y.

CITY MANAGER, N. G. DAMOOSE, REPORTS—

AUTOMATIC VOTING MACHINES

Reduce

Election Costs in the City of Ypsilanti, Michigan

In 1946, Ypsilanti, Michigan, using the old paper ballot system, cast 5,328 votes at an average cost per vote of 28.4 cents. At the recent November 7th, 1950 election, using AUTOMATIC VOTING MACHINES, the City cast 5,418 votes (nearly 100 more), at an average cost per vote of 13.2 cents.

In 1946, 74 poll workers earned $1,513, compared to the $715 that 46 workers drew on November 7th, 1950. Savings in labor and printing bills amounted to about $1400.

Similar savings are possible in your community. We should be pleased to estimate such savings at no cost or obligation to your community. Write—

AUTOMATIC VOTING MACHINE CORPORATION

JAMESTOWN 55, NEW YORK

New Fire Pump

New Waterous CD-4 is a 1,500 gpm "Class A" centrifugal fire pump.

A new centrifugal fire pump which, at most locations, will meet a 1,500-gpm, "Class A" underwriters test at a 10-foot lift through a single line of 6-inch suction hose, is announced by Fred A. Waterous, president of the WATEROUS CO., 70 E. FILLMORE AVE., ST. PAUL 1, MINN.

Called the CD-4, this latest Waterous firefighter retains many of the basic design features of previous models, including a horizontal-split 2-piece pump casing, and readily accessible split-gland type stuffing boxes. The oil lubricated impeller shaft bearings are located outside the pump casing.

Complete information on the new fire pump is available directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 929.

Earthmoving Combination for Cities and Towns

Move the shovel-selector lever, and the new "Four-In-One" is transformed into a bottom dumping clamshell shovel.

Towns and small cities will find this new "Four-In-One" attachment a valuable unit for handling a variety of earthmoving jobs.

Easily attached to an International TD-6 crawler tractor, the hydraulically controlled "Four-In-One" may be converted into a bullclam shovel, bulldozer, front-end loader, or clamshell, simply by placing the shovel-selector level in the desired position. This lever is located within easy reach of the operator, and shovel selection can be made both when the tractor is in motion and when it is standing still.

As a bullclam shovel, the "Four-In-One" may be used for sanitary landfill operations; with the clam open, the shovel becomes a bulldozer; and in the front-end loader position, the attachment has the same role back at ground level as a standard Drott front-end loader. In addition to the four shovel features, the unit may also be used as a backhoe.

Detailed information on the new Drott "Four-In-One" is available directly from the INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL., or you may use the Post Card on the colored page in this section. Circle No. 934.

●TENNANT Sweeper cleans 48" path; replaces 3 to 12-man crew.

New Compact Machine Sweeps Gutters Walks and Alleys at 1/5 Usual Cost

BY SWEEPING congested areas with a new type power sweeper instead of pushbrooms, Akron, Cleveland and several other cities may save up to 80% this year in labor costs.

The new sweeper, shown at the APWA meeting in New Orleans last fall, is a compact heavy-duty machine. It cleans a 48" path and turns easily in a 5-ft. radius.

Its sweeping capacity is reported to equal that of a 3 to 12-man pushbroom crew.

Sweeps Cleaner Than a Crew

The sweeper has a powerful brush-and-vacuum system which eliminates need for water spraying or "wetting down." A rotating curb-brush sweeps leaves, dust and litter into main path of the machine.

A 36" brush, in a vacuumized compartment, throws dirt forward into an enclosed 9 cu. ft. hopper. Sweeping speed, with 2-speed transmission, is 1½ to 8 MPH.

Pays For Itself In 6 Months

The new sweeper has proved most successful in "mechanizing" whitewing work in special congested areas where big sweepers can't be used—such as gutters in downtown areas, walks, alleys, garages, driveways, etc.

In such areas a single machine is said to pay for itself in 1 to 6 months.

Air terminals, auditoriums, piers and parking lots also can be swept most economically this way.

For details, please write or wire to the G. H. TENNANT CO., 2520 N. 2nd St., Minneapolis 11, Minnesota.

Don't Let "WINTER PARALYSIS" Cripple Your Town!

Prevent it with BAUGHMAN

. . . the SAFE name in Ice-Control Equipment

- Complete Line of Pull-Type or Truck-Mounted Spreaders.
- Hydraulic, Mechanical or Traction Powered.
- For Sand, Cinders, Salt, Chips, Calcium Chloride, Gravel.

Ask for a demonstration . . .
call your BAUGHMAN distributor

THE NEW HYDRAULIC *"SPREAD MOBILE"*

- *Exclusive new "Center-Spred" Design—spreads material under all four wheels for better operator visibility, perfect traction.*
- *Operator can control direction of spread (left, right, or center) as well as amount and width of spread.*
- *Hydraulically Controlled from Cab with one man operation.*
- *Exhaust Heater to prevent load freezing.*
- *Split-Bottom Dump for off-season dump-body uses.*
- *Heavy-Duty Auxiliary Gas Engine for hydraulic system.*

ICE CONTROL DISTRIBUTORS

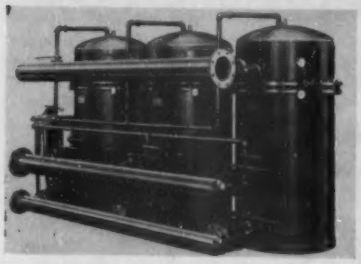
Connecticut, Hartford
Holmes-Talcott Co.
Delaware, Milford
B. V. Wharton
Illinois, Chicago
C. C. Fuller Co.
Illinois, East St. Louis
Transportation Equip. Co.
Illinois, Jerseyville
Baughman Serv. & Equip. Co.
Illinois, Moline
Moline Body Co.
Indiana, Indianapolis
Allied Truck Equip. Corp.
Iowa, Des Moines
Hawkeye Truck Equip. Co.
Maine, South Portland
N. A. Burkitt, Inc.
Massachusetts, Cambridge
Sandberg Equip. Co.
Michigan, Bark River
Bark River Culvert & Equip. Co.
Michigan, Rockford
Burch Body Works
Michigan, Lansing
Truck & Trailer Equip. Sales Co.
Michigan, Saginaw
Scientific Brake & Equip. Co.
Minnesota, Minneapolis
Ruffridge-Johnson Equip. Co.
Missouri, Chillicothe
Cooke Sales & Serv., Inc.
New York, Buffalo
T. E. Potts Equip. Co.
New York, Groton
Highway Materials Co.
New York, Pelham Manor
Tyler-Preusser, Inc.
New York, Rensselaer
Van's Equip. Sales, Inc.
North Carolina, Charlotte
Twin-States Equip. Co.
North Carolina, Raleigh
Twin-States Equip. Co.
Ohio, Canfield
Myers Equip. Corp.
Ohio, Cleveland
Ohio Truck Equip. Co.
Pennsylvania, Harrisburg
F. W. D. Truck & Equip. Co.
Tennessee, Memphis
Scruggs Equip. Co.
Vermont, Montpelier
Vermont Road Equip. Co.
Wisconsin, Milwaukee
Hunter Tractor & Mach. Co.

BAUGHMAN MANUFACTURING COMPANY
147 Shipman Road • Jerseyville, Illinois

Swimming Pool Filters

You may keep the water in public swimming pools clear and sparkling—even after a heavy bather load—by installing an easy-to-operate swimming pool filter made by the R. P. ADAMS CO., INC., 232 E. PARK DR., BUFFALO 17, N. Y.

A compact "packaged unit" that won't waste floor space, the Adams' SPF is built around the Poro-Stone principle of filtration, and is equipped with built-in backwash facilities. The filter's high dome, above the cover bolts, holds the compressed air, facilitating a quick, thorough purging of the filter elements, without disassembling the filter. All accessories are conveniently arranged for efficient operation and compact piping.



These three SPF-169 filters are an exact replica of an installation made at the Garfield pool in Grand Rapids, Mich.

Details on these low-cost swimming pool filters, plus charts and dimensions, will be furnished by the R. P. Adams Co., Inc. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 915.

Tractor-Mounted Chipper

Taking a chipper over rough terrain is easy, if it is tractor-mounted like this one.

The nuisance of brush disposal in hard-to-reach places is no problem at all to an Asplundh chipper, mounted on a rubber-tired Ford tractor. The combination has proved particularly good in roadside operations, in park roads, and in relatively uninhabited areas where dispersal of the chips in the right-of-way or adjoining fields would not be troublesome.

The tractor-mounted chipper also offers possibilities in some municipalities using the sanitary fill for refuse disposal. In this case the tractor and chipper can be left at the fill and brush, often brought by private haulers, can be destroyed and the chips scattered over the face of the fill as a nuisance-free covering.

The tractor has a step-down transmission and a right-angle power-take-off that supplies power to the chipping unit through a belt drive. The use of the combination eliminates the expense of hauling, and the hazard of fire in rural or wooded areas.

For full information on this new tractor-mounted chipper, write directly to the ASPLUNDH CHIPPER CO., 507 YORK RD., JENKINTOWN, PA., or you may use the Post Card on the colored page in this section. Circle No. 917.

1. Large illustration shows Singl-use Fiberform ready to be filled.
2. Filling plate and collar simplify pouring concrete into form.
3. Completed meter box barrel.
4. Meter box with cover in place.

FOR ECONOMICAL SETTINGS

Make Your Own

CONCRETE METER BOX BARRELS *with*

FORD *Singl-use Fiberforms*

Water utilities that find vitrified or concrete tile expensive or difficult to obtain, may now make their own barrels for outside meter settings with Ford Singl-use Fiberforms which are inexpensive and easy to use. Forms made for 15", 18" and 20" ID barrels and in lengths of 15", 18" and 24". Use two for deep settings. Send for full information.

FOR BETTER WATER SERVICES **FORD**

THE FORD METER BOX COMPANY, INC. Wabash, Indiana

? Did you participate in the June 14 CD activities?

? Did you pass the test?

? Did your warning signal system serve its purpose?

? Would it have been adequate in a *real* emergency?

If you can honestly say "yes" to these questions you are among the few to earn congratulations!

EVALUATION is in order!

There is still time for an honest appraisal of your needs. CD preparations daily grow more vital. ACT while FEDERAL assistance is still available.

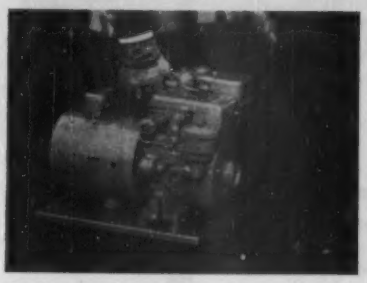
FEDERAL Thunderbolt and STL-10 air-raid sirens proved their superior worth in these recent tests. If you are not familiar with these outstanding air-raid warning signals, don't fail to obtain full information before you complete your CD systems. ACT NOW—DO IT TODAY!

FEDERAL SIGN and SIGNAL Corporation

Formerly Federal Enterprises, Inc.

8756 SOUTH STATE STREET, CHICAGO 19, ILLINOIS

Generator Provides On-the-Job Power



Easily carried from job-to-job, the Model C-1000 runs on regular gasoline.

Newest addition to the line of portable electric plants made by the Lynn Engineering & Supply Co., is the Model C-1000 "Powerhouse," an inexpensive, light-weight engine generator plant designed for operating power tools, pumps, air compressors, and blowers. The generator has a maximum output of 1,250 watts, and a continuous sea level rating of 1,000 watts, 115 volts, single phase, 60 cycles. It weighs only 85 pounds, and is 18 inches wide, 15½ inches long, and 15 inches high.

A Briggs & Stratton 4-cycle, air-cooled engine, developing 2.5 hp at 3,600 rpm, powers the Model C-1000. The engine generator is isolated from its base by rubber vibration insulators for smooth operation. There is no need to fasten the base to the floor, and the set remains stable on sand, mud, and snow.

In addition to supplying the power for hand tools, the new "Powerhouse" is adequate for emergency use on fire trucks, tow-cars, or disaster units, and will operate flood lights and communications equipment.

For full information on Lynn electric plants, write the LYNN ENGINEERING & SUPPLY CO., RUSS BLDG., SAN FRANCISCO 4, CALIF., or you may use the Post Card in this section. Circle No. 911.

Company Hails Blower's 100th Anniversary

In 1854 the Roots brothers, Francis and Philander, introduced the first Roots industrial blower based on their own discovery, a principle for creating positive mass movement of gas and air. Today, 100 years later, this principle remains basically unchanged, and blowers bearing the Roots name are moving gas and air at moderate pressures in almost every important industry throughout the world.

One of the reasons Roots machines have achieved such wide acceptance through the years, is easily explained by their unusual service records. Forty years of operation without a breakdown has become commonplace, and one blower, located in a New Jersey plant, has been operating for 78 years.

While many improvements have been made in housings, bearings, mechanical details, and the metals contained in the machines, the company has not been able to improve on the principle of counter-revolving impellers. These impellers are shaped in the figure-eight, and as they revolve they scoop in a measure of air at the intake, carry it around to the outlet, then go around for another load. Thus a positive movement of air or gas is accomplished.

After a succession of changing ownerships and mergers, ROOTS-CONNERSVILLE BLOWER, CONNERSVILLE, IND., today operates as a division of Dresser Industries, Inc.

STANDARD STEEL "S-J"
for PATCHING – PRIME COAT – SEALING-
SHOULDER REPAIR and CRACK FILLING

Built to Standard The Highest

Compare These Special "S-J" Features:

1 SUCKS BACK surplus material into tank after spraybar is closed. Less drip! Means clean bar for next job!

2 PIPING and PUMP are automatically drained after finishing a job! This prevents "freezing" or slow start on heavy materials!

3 All OPERATIONS easily controlled by one operator riding the unit!

4 GRAVITY DRAW OFF ON CURB SIDE—means greater safety for operator!

5 ALL PARTS Readily Accessible for easy repair. Entire piping system can be taken down by unbolting only two circle flanges!

SAVES TIME and LABOR
HANDLES ALL TYPES OF BITUMINOUS MATERIAL

★ For year round use—Standard Steel "S-J" Maintenance Distributor can be used either for emergency or secondary construction work.

The most adaptable piece of road equipment you can buy, the "S-J" performs many duties of heavier machines — such as building drives, alleys, playgrounds, parking areas, shoulders, reshaping curves as well as patching and sealing. Quick to start and get going, fast on the job, the low cost of this equipment will be paid for in reduced construction and maintenance cost in a single season. Get the facts and cost on the "S-J" before you invest in any similar equipment.

OTHER STANDARD STEEL PRODUCTS

Asphalt Pressure Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms and Aggregate Spreaders.

WRITE FOR NEW Catalog "S-J"

SJ5

Standard Steel Works, NORTH KANSAS CITY, MO.

Greater tractor use the year 'round with M-B Tractor Sweepers

Don't let your tractor sweeper hibernate for the Winter months — put it to work clearing snow from roads, streets, parking areas and ice skating ponds. During the rest of the year your tractor and M-B Sweeper is constantly on the go keeping your streets and roads safe and clean. When not in use as a sweeper, your tractor is kept busy doing general drawbar work and other odd jobs.

M-B brushes are made of steel or the finest fiber. Sweep a 5' path 30° to right. Hydraulically controlled brush may be raised 8" to clear obstructions. Sprinkler attachment available for dust abatement. Get complete details today.

Built for

Ford • Case • Ferguson
Minneapolis-Moline
International Harvester
John Deere

Also pull-type traction and engine powered sweepers.

GENERAL SWEEPING

LEAVES

M B CORPORATION
FORMERLY
MEILI-BLUMBERG CORP.
NEW HOLSTEIN, WISCONSIN

more power

ANOTHER PORTABLE

LINDSAY AIR COMPRESSOR

NOW—you can get an air compressor that will run a medium size paving breaker at full capacity yet is so portable it needs only one or two men (not a whole crew or truck) to get in position and operate. This heavy duty Lindsay Model T-55 is especially designed for rugged digging and drilling. Is priced to meet the budget of the small town as well as the large.

QUICK FACTS ABOUT THE LINDSAY MODEL T-55.

- Most portable in its class
- Large storage box for tools
- Torsion spring mounting
- Direct fan cooling

Lindsay Model T-55-H with heavy gauge metal housing.

P. K. LINDSAY COMPANY
97C Tileston St. Everett 49, Mass.

Vallejo Police Cars Get New Warning Lights

Used by the City of Vallejo, Calif., for traffic enforcement and other police services, these cars were recently equipped with telescopic emergency lights that provide a full 360° coverage and are adjustable to any height above the top of the vehicle. The lights are clearly visible at a far distance, and are made by the McDonald and Arneson Mfg. Co., 225 Spring Rd., Vallejo, Calif.

The telescopic emergency light atop each police car is easily raised or lowered.

According to Jack E. Stiltz, Vallejo's chief of police, the new lights are an important safety factor in answering night emergency calls, "particularly when it is necessary to travel through heavy traffic." Raised, the light can be seen by vehicles blocks ahead. At intersections, reports Chief Stiltz, or other locations where it is necessary to divert traffic, "the police vehicle can be parked at a central location with the telescopic light raised." In this position, the light is clearly visible at great distances and from all sides and is able to prevent traffic hazards and congestion by quickly alerting drivers and pedestrians.

For a complete description of the new safety light, ideal for police cars, ambulances, and fire trucks, write directly to the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 913.

New 2-Way Radio Facilitates Police Work

A new 2-way radio system, designed for mobile police communications in the 25-54 mc band, is announced by the Mobile Communications Dept., Allen B. Du Mont Laboratories, Inc., Clifton, N. J.

The MCA-101A mobile system is rated at 35 watts output at 25-45 mc, and 30 watts at 45-54 mc. It features a transmitter, receiver, and power supply, all housed in a compact metal cabinet. This cabinet is easy to install in the trunk of a car. The operating panel may be quickly mounted on the dashboard at the operating point.

The complete transmitter–receiver power-supply unit measures 8¼ inches wide, 16¼ inches long, and 6 inches high, and weighs only 35 pounds. It is designed for maximum efficiency, reducing the need for special heavy-duty generators, batteries, and wiring.

Detailed information on the Du Mont Type MCA-101A mobile system is available directly from the company, or you may use the Post Card on the colored page in this section. Circle No. 936.

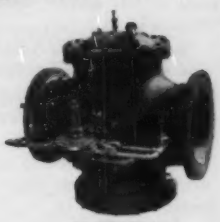
IF YOU HAVE EXPERIENCED
Water Shortage—Surge—Unnecessary Waste
INSTALL ROSS VALVES FOR CONTROL OF WATER STORAGE, SUPPLY CONDUIT AND DISTRIBUTION PRESSURES

ROSS SINCE 1879
MANUFACTURERS OF AUTOMATIC HYDRAULIC CONTROL VALVES AND SPECIALTIES

PRESSURE REDUCING VALVE

SURGE RELIEF OR BACK PRESSURE VALVE

OTHER ROSS PRODUCTS:
FLOAT VALVES
STRAINERS
HYDRAULIC BOOSTER PUMPS FOR CHLORINE FEED
HYDRAULIC AND ELECTRIC CONTROLLED VALVES


ALTITUDE VALVE

ROSS VALVE MFG. CO. INC.
8 Oakwood Ave. Troy, N. Y.

PHOTOGRAPH BY RICHARD BEATTIE

YOU are part of their prayers...

ONE MORE SPRING has come to our spinning earth. The dark soil stirs: the vines revive. Who can doubt now that the resurrection and the life are real—? It is a time for joy and hope; a time for faith; and never, surely—never—a time for despair . . .

Yet thousands of Americans will come this week to the church or temple of their choice—unjoyously, with despair in their hearts—to pray for a miracle.

They are the lovers of the doomed. They have listened to the most terrible words that those who love can ever hear:

"I'm sorry . . . Your wife . . . Your mother . . . Your brother . . . Yes, Cancer. We discovered it too late . . ."

In so little time now, they must learn to live alone. For those they love will die: a year from now; a month from now; a few weeks, more or less. Only a merciful miracle can change the story: the final, sure *cure* for cancer. It is for this they pray.

And you are a part of their prayers. For man is the instrument of God's works. The miracle men pray for, in the battle with man's cruelest enemy, must come from the laboratories of men . . . the laboratories *you* support, through your contributions to the American Cancer Society.

You can turn the page now—and forget about the whole thing in twenty seconds. Or you can pause and consider how much *you* want to give.

American Cancer Society

Cancer
Man's cruelest enemy
strike back
Give

GENTLEMEN:

☐ Please send me free information on cancer.

☐ Enclosed is my contribution of $..... to the cancer crusade.

Name.....

Address.....

City.....State.....

Simply address the envelope:
CANCER c/o Postmaster, Name of Your Town

Picks Up and Pulverizes Fallen Leaves

Turbo Jet eliminates the necessity of raking, hauling, and burning fallen leaves.

The park official's seasonal dilemma of raking, hauling, and burning fallen leaves is an out-dated problem, says THE TURBO JET MFG. CO., 22 BOWMAN TERRACE, CINCINNATI 29, OHIO. This company has designed an effective new power leaf mill that is easily operated by one man, and cleans leaves from all of those difficult-to-reach locations.

The Turbo-Jet power leaf mill quickly gathers and reduces large quantities of leaves into a fine chaff that is then blown back into the ground as a valuable mulch, or collected in a bag for other use. A powerful discharge air stream is used as a blower, moving leaves to more accessible ground, and forming them into windrows for fast pulverization.

The new leaf mill operates on a simple direct-driven propeller arrangement. It is fully described in literature from The Turbo Jet Mfg. Co. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 931.

New Attachment for Hydraulic Dragshovel

New "wrist action" dipper increases the digging force of the H-3 Hydrohoe.

Attached to the Bucyrus-Erie H-3 Hydrohoe, this new "wrist action" dipper provides increased digging force, reduces spillage, and improves the ranges for clean dumping into trucks. It can dig vertically, or undercut walls and trenches which are deeper than they are long, and is able to make continuous passes without stalling.

The new attachment rotates in a vertical plane, and the operator can change the pitch or rake of the dipper teeth during the digging arc for the best cutting angle. He can pry out rocks or expose pipe without damaging the pipe.

When the dipper is rotated simultaneously while the digging ram is extended, the combined effort produces about 38 hp at the dipper teeth, and a 50% increase in digging power may be obtained. The hydraulic ram controlling the "wrist action" is powered by the pump which normally supplies the swing bank.

An H-3 Hydrohoe may be purchased with or without the new "wrist-action" dipper, and earlier models may be converted to include the attachment.

For full details, write the BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS., or you may use the Post Card on the colored page in this section. Circle No. 918.

Seeking Diversity in Your Pension Fund Investments?

LOOK into tax-exempt bonds. The increased volume reaching the market has brought new diversification opportunities, as well as exceptionally desirable yields—up to 3% and more on many turnpike and other revenue issues. You now can obtain not only the traditional safety and dependable yield required by pension, insurance and endowment funds, but you have a wide choice in types of tax exempts, geographical locations of the issuers, purposes of the issues, and maturity dates.

Even discounting their tax exemption, which may have no value for the pension fund, the higher yields and new diversification potential of municipals make them highly attractive for fund investment. Send without obligation for our latest offering list.

HALSEY, STUART & CO. INC.

123 SOUTH LA SALLE STREET, CHICAGO 90 • 35 WALL STREET, NEW YORK 5

AND OTHER PRINCIPAL CITIES

Improved Parking Maintenance at Less Cost

This 5-gang lawn mower may also be used as a trailer unit for any tractor.

Communities operating Farmall Cub on Ford and Ferguson tractors, are offered two new units designed to simplify park, playground, and airport maintenance. They are the Kub-Klipper which mows, cuts, and shreds grass, and the "10-Footer" for mowing larger areas economically.

The Kub-Klipper, easily attached to a Farmall Cub tractor, cuts a 46-inch swath, and features hydraulically-controlled cutting heights ranging from 1 to 7 inches. Low cost, it is economical to operate, and requires a minimum of maintenance.

The new 5-gang lawn mower, the "10-Footer," is made for the 3-point hitch of Ford and Ferguson tractors, and cuts a neat, uniform 10-foot swath. A special hitch permits short turns without skidding, while custom built tension springs and special stabilizer bars eliminate bouncing by keeping proper pressure on the cutting units.

Both the Kub-Klipper and the "10-Footer" are made by SUNFLOWER INDUSTRIES, INC., OLATHE, KANS. For additional information, address the company directly, or take advantage of the Post Card on the colored page in this section. Circle No. 943.

PIG IRON *with a* HOLE IN IT!

Close-up view of pulling a pipe from centrifugal casting machine.

WHY McWANE-PACIFIC CAST IRON PIPE *LASTS for CENTURIES*

Cast Iron Pipe is an engineering product. But the "wag" who jokingly said that Cast Iron Pipe was a "chunk of pig iron with a hole in it" probably spoke with more wisdom than he realized.

Production of pig iron is the first step in refinement of iron ore. As everyone knows, iron ore has laid in the ground for untold ages of time, without rust or corrosion. The more iron is refined, the more subject it is to rust and deterioration. The less it is refined, the more durable it remains. That is why McWane-Pacific Super DeLavaud cast iron pipe, ("pig iron with a hole in it") lasts for centuries.

For details, wire or write McWANE CAST IRON PIPE COMPANY, Birmingham, Alabama, or PACIFIC STATES CAST IRON PIPE COMPANY, Provo, Utah. (Sales offices in principal cities.)

McWANE PACIFIC PIPE *Lasts for Centuries*

New Kub-Klipper makes easy work of mowing, cutting, and shredding grass.

Combination Crane and Catch-Basin Cleaner

Attached to a Hiab hydraulic truck-crane, this new catch basin cleaning bucket is an ideal unit for cleaning sewers and catch basins in small towns and cities, according to the STEDT HYDRAULIC CRANE CO., 15 BOYLSTON PL., BROOKLINE 46, MASS.

The hydraulically-operated "orange peel" type of leaf bucket is small enough to fit into the average sewer, and will clear more debris from a catch basin than several men working with scoop shovels. It may be attached or removed in minutes, permitting full use of the Hiab crane on a variety of city jobs.

The new catch basin cleaning attachment incorporates four cast steel bucket blades which are actuated by a single acting ram and cylinder, requiring only

one high pressure hose line for fast, positive action. Fifty feet of hose is furnished on a sturdy reel.

Each Hiab crane loads its own or other trucks with or without the catch basin cleaning bucket. The crane may be installed on any truck, requires only

New catch basin cleaning bucket is attached to a Hiab truck-crane.

about 12 inches of space between back of cab and front of body, and can be operated from either side of the truck.

For detailed information on the Hiab crane and the new Stetco catch-basin cleaner, write the company directly, or you may use the Post Card on the colored page in this section. Circle No. 942.

Portable Machine Makes Clean Copies Quickly

Easily carried from one place to another, the APECO "Private Eye" Auto-Stat makes clean, legible copies from books, charts, letters, and other documents in less time and at low cost.

Complete with a zipper carrying case, the new machine weighs only 24 pounds and is simple to operate by plugging it into any electrical outlet. It is 17 inches long, 11 inches wide, and 12 inches high, and will handle letter and legal size copies as well as larger copies up to 11 x 17 inches.

The electric, one unit copier is completely automatic, and an inexperienced operator may produce a finished copy in two simple steps. A specially designed plastic solution bottle permits easy draining of the concentrate and storage so that the operator's hands never get wet.

A free, illustrated booklet describing the APECO "Private Eye" in detail, is available from the AMERICAN PHOTOCOPY EQUIPMENT CO., 1937 W. PETERSON, CHICAGO 26, ILL. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 916.

New Caterpillar Plant

A new plant opened by the CATERPILLAR TRACTOR CO., at York, Pa., recently, is expected to offer improved parts service to the firm's eastern and export customers.

This latest Caterpillar plant will turn out replacement parts for the firm's line of track-type tractors, and will serve as a regional storage and shipping center for the company's parts line.

Easily accessible to ports on the eastern seaboard from which parts are shipped to Caterpillar's export customers, the new site permits faster service to Caterpillar customers in the eastern part of the country as well. It is located on the main line of the Pennsylvania railroad which provides a convenient route from the firm's largest manufacturing facility, at Peoria, Ill.

"One TORNADO Replaces 5 Machines"

say Street Superintendents

Let OBECO'S TORNADO Save Your City Thousands in Street Cleaning Expense

TORNADO FEATURES

- Quickly and efficiently cleans streets of all light debris.
- Easily and economically operated by two men.
- Eliminates the need of sweeping leaves away from curb.
- Auxiliary hose reaches into otherwise inaccessible areas.
- Harmless to all types of street surfacing.
- Suction velocity equivalent to hundred-mile-an-hour wind.
- Can be driven directly to dump site for unloading.
- Easily and quickly installed on any make truck or trailer.

"Budgets go further with a TORNADO" is the report from cities using these units. And no wonder, because the TORNADO is the one outstanding machine to handle your street cleaning quickly, efficiently, economically.

One city reports one TORNADO replaces a complete crew of men using machine sweeper, loader, and three dump trucks. Unit mounted on truck. Loaded truck can be driven directly to dump site . . . no uncoupling units or transferring loads.

For full details, cost, and delivery, write today to:

Obeco **Omaha Body & Equipment Co., Inc.**

24th & Vinton Streets • Omaha, Nebraska

HOW TO LOCATE WATER LEAKS

...with Simplex Pitot Equipment

WHY not decrease your load and stop pumping to waste? Locate the hidden leaks which waste thousands of gallons per day per mile of main . . . far more than usually guess-timated!

Locating these leaks with Simplex Pitot Equipment costs only a tiny fraction of the value of the water being wasted. You get accurate flow records with minimum effort . . . valuable data that will help you to reduce "unaccounted-for water" to a minimum.

PITOT ROD

Simple, rugged and lightweight. Easily installed on any pipe or main. Special clamp holds tube firmly in position against water pressure.

Low coefficient gives high differential pressure for greatest accuracy.

MANOMETER

Quickly connects to a Simplex Pitot Rod with flexible tubing. You then have a simple, sensitive and inexpensive instrument for indicating rate of flow.

Can be used for wide flow ranges . . . low or high.

PITOT RECORDER

Connects easily to Pitot Rod. Eight-inch chart records flow data. Simple and rugged construction . . . no delicate mechanisms . . . yet sensitive and accurate.

Sturdy carrying case. Leveling feet. Reliable 7-day clock movement for chart. Accurately calibrated.

Get the Facts!

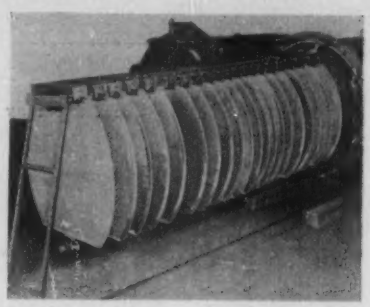
Free 20-page Technical Bulletin 1300. Full instructions for use and care of Pitot equipment. Seven pages of helpful formulae, tables, curves. Write to Simplex Valve & Meter Co., 6789 Upland St., Philadelphia 42, Pa.

SIMPLEX®

VALVE AND METER COMPANY

Purchasing

New Swimming Pool Filter



One of the larger Clearflow filter units, positioned for inspection, shows clearly the Orlon filter elements.

Equipped with a new, revolving jet spray, this diatomite swimming pool filter sluices and scrubs filter elements with a jet stream of water, providing 100% back-washing efficiency. Only 120 gallons of water are needed to backwash a filter for a 60,000 gallon pool, and the entire operation is performed in some 60 seconds.

Designed by the AMERICAN POOL CO., NORTH STATE RD., BRIARCLIFF, N. Y., the new Clearflow filter is said to require from 70% to 80% less space than ordinary sand and gravel filters, and is inexpensive to install and maintain. Vertical filter leaves are made of Orlon to avoid breaking, clogging, cracking, and unraveling. Orlon, unlike stone elements, has proved itself to be trouble-free and long-lasting.

Easy-to-operate, Clearflow filters are made for almost every size swimming pool, and may be installed in single or multiple units. There are fully described in literature from the American Pool Co. Write directly, or take advantage of the Post Card on the colored page in this section. Circle No. 932.

Chicago Bridge & Iron Forms New Division

The filters, evaporators, and crystallizers offered by The Conkey Filter Co., will now be fabricated by the Chicago Bridge & Iron Co., according to a recent announcement. This filter equipment will be handled at the company's Birmingham, Chicago, Salt Lake City, and Greenville, Pa. plants, and a sales and engineering office staffed by Conkey Equipment personnel will be maintained at 165 Broadway, New York 6, N. Y. Manager of the new Conkey Equipment Division is Henry M. Hunter.

George Dickey, who organized The Conkey Filter Co. in 1923, and Philip B. Sadtler are assistant engineers. Mr. Dickey

is known as the author of a number of books on filtration, and is a member of the N. Y. Sewage and Trade Waste Association. He is expected to remain as a member of the new Conkey Equipment Division.

The Conkey Filter Co. is the direct successor to the Moore Filter Co., organized in 1905. Included in the firm's line are various types of vacuum filter equipment and auxiliaries, pressure filters for sewage plants, and pressure and vacuum evaporators.

Combination Cart and Portable Leaf Burner

New "Handy-Andy" utility cart is easy to push or pull from place to place.

In spring, parks can use this handy utility cart for their general clean-up work, and in summer and fall, the unit may be used to burn leaves, twigs, papers, and grass cuttings.

Designed by Gardening Products, Inc., the steel "Handy Andy" cart has a capacity of 12 cubic feet. Mounted on wheels, it enables you to burn as you go, without piling or carrying the leaves. Draft is facilitated by perforated steel sides, front, back and bottom, and a heavy-gauge ash collector, located three inches below the burning basket, prevents unsightly ash piles. To dump the ashes, you simply tilt the handle upward.

Each "Handy Andy" is finished in bright aluminum with green handle and undercarriage, and bright red wheels. Low-cost, it may be used successfully at parks, schools, playgrounds, and beaches.

Additional information is obtainable from GARDENING PRODUCTS, INC., 1503 STATE HIGHWAY 23, WAYNE, N. J. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 939.

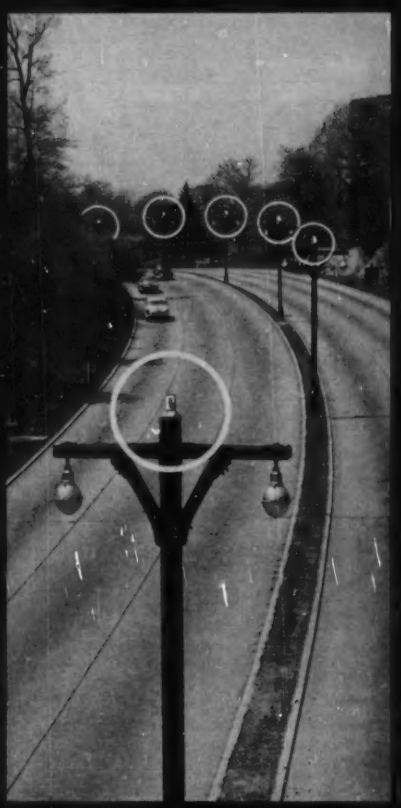
first IN SIMPLICITY EFFICIENCY LOW COST

LUMATROL®

Omni-Directional Photoelectric Light Switch integrates light from all directions . . . completely reliable in any weather, 12 months of the year!

LUMATROL offers *fully* automatic light control that is simple, reliable, compact and easy to install. LUMATROL can be used with, or easily adapted to, virtually any outdoor *lighting requirement*, regardless of location, type of pole or luminaire!

Although considerably lower in cost, LUMATROL rates *FIRST* on all twelve specifications applied to this type control. Only ruggedized components are used. ACCURATE, POSITIVE SWITCHING OF ILLUMINATION IS ASSURED UNDER ALL CONDITIONS OF USE. Where ever specified, Lumatrol is producing marked economies in maintenance and service costs!



TYPICAL LUMATROL INSTALLATION ON WOOD POLES OVER HENRY HUDSON PARKWAY, NEW YORK CITY,

WRITE TODAY FOR TECHNICAL BULLETIN.

micro balancing INCORPORATED

GARDEN CITY PARK, L. I., NEW YORK

® Trade Mark Reg. U.S. Pat. Off.

flatten cost curves with UNIVERSAL Flat-base pipe

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industry

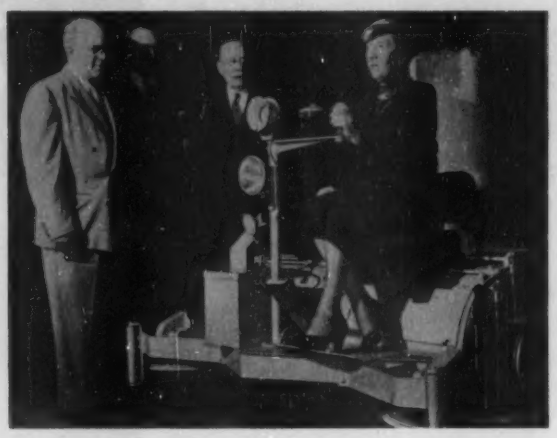
Pre-cast concrete pipe saves up to 30% over built-in-place methods. Easy installation. Up to 100 feet of UNIVERSAL Flat-base pipe can be laid and covered in one day!

Built for heavy duty, low maintenance. Flatten your cost curves . . . specify UNIVERSAL Flat-base concrete pipe. Write . . . we'll tell you more.

THE UNIVERSAL CONCRETE PIPE COMPANY
297 SOUTH HIGH STREET
COLUMBUS 15, OHIO
A subsidiary of the American-Marietta Co.

Purchasing News

Sweepers Open Clean-Up Campaign



Philadelphia's annual "Clean-Up" campaign, sponsored by the city's Chamber of Commerce, was initiated recently with the arrival of two new power sweepers. The sweepers, made by the Wilshire Power Sweeper Co., are capable of sweeping 100,000 square feet per hour, and will be used at Philadelphia's International Airport.

In the accompanying photo, Mrs. Walter Craig, co-chairman of the Philadelphia Chamber of Commerce "Clean-Up" Committee, tries out one of the new power sweepers. Looking on are, left to right, Louis R. Inwood, director of aviation; C. P. Jarden, co-chairman of the "Clean-Up" Committee; and Philadelphia Councilman Victor H. Blanc. The sweepers were delivered by Fred Hill & Son, Wilshire distributors for the Philadelphia area.

Detailed information on the new Wil-

for a CLEAN SWEEP

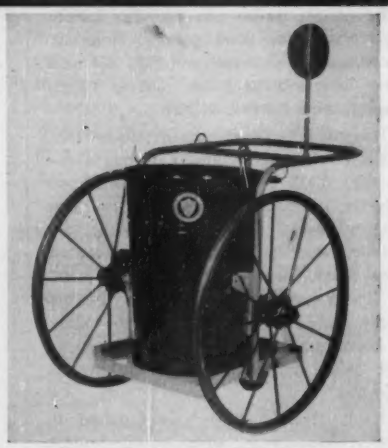
You know this is true: **only hand-pushed brooms get all the dirt.**

For dependable, economical **SERVICE** Tarco "Street Sweepers' Friend" Carriers are **BEST.**

Choice of STYLES: for a **single can** or for **two cans.**

Choice of large wheel TIRING: **pneumatic, solid rubber** or **plain steel.**

Balanced and free-running. Silent can clamp. Safety traffic-warning flag. Full swiveling castor wheels. Level lift sweeper scoop available.



No. 17 Carrier with H.D. Can

Your sweeper cart for years to come: a TARCO.

Other TARCO Products

"Scotchman" Spreader — "Flash-Flame" Dryer

ALL-PURPOSE Sprayer

Asphalt Pouring Pots — Street Refuse Cans

TARRANT MFG. CO., East Ave., Saratoga Springs, N. Y.

shire sweeper may be obtained by writing directly to the WILSHIRE POWER SWEEPER CO., 526 W. CHEVY CHASE DR., GLENDALE 4, CALIF., or use the Post Card on the colored page in this section. Circle No. 930.

Compression Hydrant for Parks and Schools

Where water is needed quickly, use the "Murdock, Jr.," a new low-cost ¾-inch compression hydrant, made of grade A bronze and grey iron castings.

Designed by the Murdock Mfg. & Supply Co., which is now celebrating its 100th anniversary, the new hydrant never freezes, and is able to perform successfully in any weather. Water flow is controlled by a large ball wheel handle or lever at the top of the hydrant.

In addition to the new "Murdock, Jr.," the company offers fire, farm and flush hydrants; drinking fountains; chemical and drench showers; Q. O. C. air and check valves; street washers; and airline water service equipment. Address THE MURDOCK MFG. & SUPPLY CO., CINCINNATI 2, OHIO, or you may use the Post Card on the colored page in this section. Circle No. 928.

Playground Provides Imaginative Recreation

Not only the modern school with its advanced methods of education, but the public playground, too, can play an effective role in developing the child's

imagination, according to CREATIVE PLAYTHINGS, INC., 5 UNIVERSITY PLACE, NEW YORK 3, N. Y.

This company has introduced sculptural playground equipment designed to provide young children with opportunities for active physical and social creative play. There are play mountains, animals and other nature forms, free-form sculptures, arches, caves, and tunnels; all harmonizing with the stimulating educational policies followed by the modern community.

Ideally, play sculpture should be installed in a modern playground, designed with the aid of the sculptor, the recreation director, the educator, and the landscape artist. For this reason, Creative Playthings, Inc., has formed a Play Sculptures Division, which makes this kind of service available to schools, community playgrounds, and parks. The Division maintains display and resource centers, at 5 University Pl., and at 316 N. Michigan Ave., Chicago, Ill., and offers a complete playground planning, design, and consultation service.

Communities interested in learning more about play sculpture and modern playground planning may write directly to Creative Playthings, Inc., or use the Post Card on the colored page in this section. Circle No. 941.

SPARLING
Main-Line
METERS

TO keep an accurate log of the flows in any main line, 2-inch and up, install a Sparling Meter in the line. Direct Totalization, correct with 2 per cent, without further instrumentation. Just read it. You are all set for years of Service and Satisfaction!

Bulletin 313 and/or quotations are yours for the asking.

SPARLING METER COMPANY
INCORPORATED

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CHICAGO 8 .....1500 South Western Avenue
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CINCINNATI 2 .....626 Broadway
NEW YORK 17.....101 Park Avenue
SEATTLE 1 .....1932 First Avenue
ATLANTA 3 .....66 Luckie Street N.W.
KANSAS CITY, MO. .....6 E. Eleventh Street
SAN FRANCISCO 24.....85 Industrial Street
PITTSBURGH 13.....8530 Forbes Street

Catalite
REFLECTIVE
COMPOUND

mileage proved

dries in 6 minutes

weather proofed

Catalite
REFLECTIVE
COMPOUND
(Beads and Paint)
PREMIX REFLECTIVE TRAFFIC PAINT AT ITS BEST . .

EASILY APPLIED
—no bead dispenser necessary

See your nearest CATAPHOTE dealer—or, write

Cataphote
CORPORATION
TOLEDO 10, OHIO

Improved Hoists and Matching Dump Bodies

A line of standard duty, arm-type hoists, Strong-Arm, and the GA series, a line of matching dump bodies, are announced by the Wayne Div., of Gar Wood Industries, Inc.

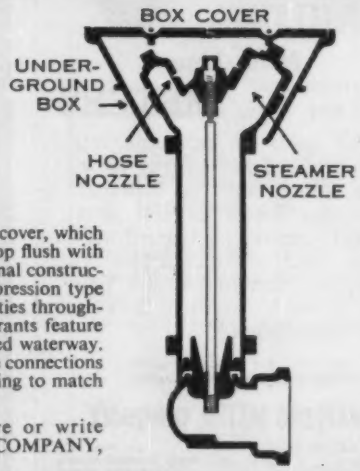
Designed with a 14% greater lifting capacity than previous models, Strong-Arm hoists are said to last longer, and are easier to maintain without special tools. They are equipped with tapered cylinder heads for low mounting and greater lifting leverage, and have a dumping angle of 55°.

Hoist cylinders consist of a head, tube, and base—held together by a tie-rod assembly. Each individual cylinder part is easily removed or replaced, and all repairs can be made with standard truck tools. The small, high-capacity hoist pump is easy to mount and designed for the most precise kind of operation.

The GA series is made up of 12 standard bodies, including combination dump and platform bodies, scow end garbage bodies, and general contractors bodies. All are simple to maintain, and may be equipped with cab protectors, flared sides, hinged steel extension sides, and other accessories.

Detailed information on the improved standard duty GA dump bodies and Strong-Arm hoists, is available from the Customer Service Dept., GAR WOOD INDUSTRIES, INC., 36014 MAIN ST., WAYNE, MICH., or you may use the Post Card on the colored page in this section. Circle No. 922.

This M & H Hydrant sets completely underground. The cast iron box cover is on line with the ground level, thus completely eliminating any interference with traffic. M & H flush type hydrants are especially designed for use at airports servicing the heaviest modern airplanes.

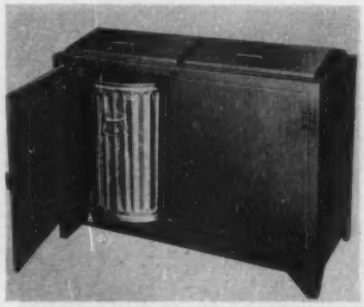


The operating nut and nozzles are accessible simply by lifting the two piece cover, which has disappearing handles designed to drop flush with the cover when not in use. Hydrant internal construction is exactly the same as M & H compression type fire hydrants used by so many municipalities throughout the country. M & H flush type hydrants feature a 5¼" valve opening and an unobstructed waterway. Can be supplied with one or two fire hose connections and/or with steamer nozzle, with threading to match existing standards.

For additional information, wire or write M & H VALVE AND FITTINGS COMPANY, ANNISTON, ALABAMA.

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

Protects Outdoor Garbage Cans



A new line of garbage can enclosures designed for outdoor use is announced by THE BENNETT MFG. CO., ALDEN, N. Y. These twin, steel units provide year-'round protection from weather, rust, vermin and foraging by neighborhood pets. They are 36¾ inches high, 47½ inches long, and 22¼ inches deep.

The two top deposit doors swing open

and close on full-length hinges which maintain perfect door alignment during constant daily use. These top doors may be fully opened for easy depositing of garbage. The slanting top sheds rain and snow.

The two front doors swing open 180°, facilitating the removal and replacement of the garbage cans. Inside flanges on all four sides reinforce the front doors, and heavy hinges are joined to the body of the enclosure. A partition separates the two garbage cans, and large, heavy steel feet keep the bottom off the damp ground.

For a full description of the new garbage can enclosure, write the company directly, or you may use the Post Card on the colored page in this section. Circle No. 914.

Better Air Ducting Means Improved Air Conditioning

Several large new buildings, including the State Highway Building in Lansing, Mich., have recently installed a new type of branch ducting for high and low pressure air conditioning systems, manufactured by the FLEXIBLE TUBING CORP., of GUILFORD, CONN.

The flexible, lightweight tubing is made of galvanized spring steel, helix

New 12-foot length of Thermaflex bends easily around corners and angles.

covered with a permanently bonded 3-ply laminate of fiberglas fabric sandwiched between two layers of aluminum sheeting. It is available in 12-foot lengths and in 2- to 10-inch diameters.

According to Frederick K. Daggett, Flexible Tubing president, field tests indicate that Thermaflex will meet the most exacting air conditioning requirements. The new tubing, it is reported, will outlast metal ducts two or three times. Its flexibility makes it easy and less expensive to install.

A Quick Drying Traffic Paint

Painting traffic lines on busy downtown streets, once the cause of long traffic tie-ups, is no longer a problem, according to the CON-LUX PAINT CORP., METUCHEN, N. J. This company has developed a new traffic coating, Safety-Lite, that dries within three minutes; is ready for traffic 10 minutes after application.

Safety-Lite paint may be applied in any weather, and is clearly visible at night, in fog, smog, or rain. It dries into a tough, mar-proof flexible film which expands and contracts with the surface of the street without cracking or peeling. Only one coat of Safety-Lite is necessary, and the paint is said to wear over 75% longer than ordinary coatings, reducing repainting and maintenance costs.

Technical Development Bulletin No. 100 describes Safety-Lite traffic coating in detail, and is available from the Con-Lux Paint Corp. For your copy, write directly to the manufacturer, or take advantage of the Post Card on the colored page in this section. Circle No. 920.

ROOT

UNDERTRUCK SCRAPERS

***Pay Off* ALL YEAR!**

Use them in spring, summer and fall to maintain streets and roads . . . in winter to remove snow and ice . . . bears down and really chisels off the ice. Positive hydraulic down pressure. Moldboard swings up out of way when not in use. Fits any truck, 1½ through 8-tons. Cities can do more work with smaller investment. Ask for Bulletin 333.

Better Road Machinery Since 1891

ROOT SPRING SCRAPER CO.

GET TO THE ROOT OF THE PROBLEM

545 WEST NORTH ST., KALAMAZOO, MICH.

LEADITE

The Pioneer Self Caulking Material for C. I. Pipe

TABLE OF COMPARATIVE QUANTITIES

Nominal inside dia. of pipe, in.	Depth of joint, inches of Leadite	Approx. lbs. of Leadite per joint	Depth of joint, inches of lead	Approx. lbs. of lead per joint
4	2.5	2.80	2.25	8.56
6	2.5	3.60	2.25	11.71
8	2.5	4.00	2.25	14.63
10	2.5	5.00	2.25	17.70
12	2.5	6.00	2.25	20.86
14	2.5	7.00	2.25	24.02
16	2.5	8.25	2.25	33.07
18	2.5	9.25	2.25	36.88
20	2.5	10.50	2.25	40.71
24	2.5	13.00	2.50	53.02
30	2.75	16.00	2.50	65.36
36	2.75	19.00	2.50	77.96
48	3.50	30.00	3.00	121.15
54	4.0	38.00	3.00	135.60
60	4.0	42.00	3.00	150.70

THE LEADITE COMPANY

Girard Trust Co. Bldg., Philadelphia 2, Pa.

No Caulking

TRAFFIC ENGINEER WANTED

The city of Corpus Christi, Texas, intends to create a Traffic Engineering Division of the Public Works Department. Traffic engineer needed to head this division. Starting salary $6132 annually, progressive increases.

Must be registered engineer State of Texas or hold registration in another state that has reciprocal agreement with Texas and have at least 2 years' experience in responsible position in traffic engineering work.

Send reply to

Drahn Jones
Public Works Director
P. O. Box 1622
Corpus Christi, Texas

...THOMPSON *Servisafe*

POLE UNITS PROVIDE OUTSTANDING
ECONOMY . . . SAFETY . . . BEAUTY

Efficient, safe, ground-level maintenance for street and parkway luminaires is guaranteed with Thompson "Servisafe" pole units. Single and double-arm models are available for use with all standard pendant type lighting fixtures.

Featuring a patented disconnecting and lowering mechanism, these easy-to-operate assemblies completely eliminate pole climbing. There are no electrical hazards for maintenance men because the lowered luminaire is "dead".

In addition, the new Thompson "Servisafe" pole units permit greater luminaire mounting heights, long recognized as necessary for improved area illumination but restricted to date by the available types of servicing equipment.

A variety of new, tapered steel and aluminum poles can be supplied to meet every application.

Write for Catalog PB-53 for complete details.

1990-TE

THE THOMPSON ELECTRIC CO.

1120 POWER AVENUE • CLEVELAND 14, OHIO

Purchasing

Gledhill to Manufacture Elliotte Leaf Loader

The Gledhill Road Machinery Co., Galion, Ohio, recently acquired the enclusive manufacturing and sales rights to the Elliotte vacuum leaf loader, according to William Gledhill, company president. The unit was previously made in Troy, N. Y., by M. A. Elliotte. Mr. Elliotte will be retained by Gledhill in a consulting capacity.

The vacuum leaf loader, formerly known as the "Sucker Upper," is towed behind a dump truck and employs a motor-driven blower to suck up curbside leaves. The leaves are delivered to the truck through a large, flexible tube.

Keeps Portable Signs in Place

With the new Speed-E-Lok device Eastern Metal's "A" stand opens in the regular way, then automatically locks in place to resist wind storms and air backwash.

To prevent heavy winds and the air backwash from passing trucks from lifting portable road signs off of their supports, Eastern Metal of Elmira, Inc., has designed a new Speed-E-Lok locking device for its "A" stand. This new device, plus the use of a "free-swinging" sign, keeps the stand in place under extreme wind conditions, and enables it to stand up under air backwash or accidental bumping.

Easy-to-use, the Speed-E-Lok device consists of a rust-proof cadmium-plated lockpin rod located in the top corner of the "A" stand and extending through the offset hole in the permanent side frame. This lockpin slips behind the movable support when the base of the stand is opened.

Eastern Metal "A" stands are made in three sizes, each featuring the new Speed-E-Lok device and a "free-swing-

ing" sign with a variety of legends. The senior sign is 24 x 24 inches, and weighs 20 pounds; the heavy-duty sign is 18 x 18 inches and weighs 18 pounds; and the standard-size sign is 18 x 18 inches, and weighs 13 pounds. Each sign is complete with stand and flags, and is easily folded so that it can be easily transported from place to place and stored in a minimum amount of space.

EASTERN METAL OF ELMIRA, INC., ELMIRA HEIGHTS 1, N. Y., will furnish complete information. Write directly, or take advantage of the Post Card on the colored page in this section. Circle No. 921.

Emergency Electric Power

The Kohler 5RM61 electric plant features either manual or remote starting, and is air rather than liquid cooled.

A 5,000-watt AC air-cooled electric plant, designed primarily for installations where a liquid-cooled unit would prove impractical, is announced by the KOHLER CO., KOHLER, WIS. It is called the 5RM61, and is available in 115-volt or 115/230-volt single phase models, powered by a 2-cylinder opposed, 4-cycle air-cooled Kohler K660 engine.

The new plant may be furnished with either manual or remote starting, with remote starting models featuring automatic chokes. A large capacity blower and housing, complete with baffles, cools the engine, thus eliminating frozen-radiator problems during cold-weather operation. Each 5RM61 plant is equipped with a muffler, an oil bath air cleaner and oil pressure gauge.

Weighing some 480 pounds, the new electric plant is 23⅛ inches wide, 28 11/16 inches high, and 32⅝ inches long. For detailed literature, write the company directly, or you may use the Post Card on the colored page in this section. Circle No. 926.

TALLER & COOPER speeds the flow of parking lot traffic at Niagara Falls

Located at the country's most famous vacation resort, this single Taller & Cooper booth efficiently controls traffic at the busy Niagara Frontier State Park Parking Area.

Prefabricated in the factory and delivered to the site as a single, completely assembled unit, Taller and Cooper Booths can be installed in hours, eliminating long weeks of costly, on-the-spot construction. Traffic can flow at once.

Taller & Cooper Booths are shop-assembled of rugged, accident-proof steel. They are functional in design, handsome in appearance. Scores of these booths are presently in use at outstanding toll facilities, parking areas, drive-in theatres, and industrial plants.

WRITE TODAY for design and construction details

TALLER & COOPER, INC.

ENGINEERS • MANUFACTURERS

72 WASHINGTON STREET • BROOKLYN 1, N. Y.

TOLL BOOTHS • TOLL COLLECTION SYSTEMS

TALLER & COOPER TOLL COLLECTION EQUIPMENT IS USED ON EVERY MAJOR TOLL FACILITY IN U. S.

THIS IS THE 2-WAY

Bendix

"MULTI-MASTER"

The Mobile Radio With A Thousand Uses!

*Reg. U. S. Pat. Off.

- The Bendix "Multi-Master" can be used as a fixed station.
- It can be used as a mobile unit.
- True adjacent channel operation in 152-174 Mc. band.
- Available in either AC or DC current.
- It is available from 2½ to 35 watt output.
- Pull up . . . pull out . . . or pivot for easier servicing.
- It can be transported from one location to another.
- Wide band adjacent channel service or split channel service in 25-50 Mc. band.

The Bendix* Multi-Master incorporates all the new and outstanding features of Bendix 2-way radio. It has range and power. Static free reception. Longer life components. Low power drain.

Bendix offers a complete line of accessories from hand sets to speakers, antenna to shock mounts . . . plus all technical help in obtaining license and complete system engineering.

It costs no more to own the best . . . so look at Bendix Radio before you buy. Write today to the address below.

Bendix Radio

DIVISION OF BENDIX AVIATION CORPORATION
BALTIMORE 4, MARYLAND

Export Sales: Bendix International Division, 205 E. 42nd St., New York 17, N. Y., U. S. A.
West Coast Sales: 10500 Magnolia Blvd. North Hollywood, California
Canadian Distributor: Aviation Electric, Ltd., 200 Laurentian Blvd., Montreal, Quebec

Purchasing News

Tractor Plus 7-Gang Mowers Do Difficult Cutting Job

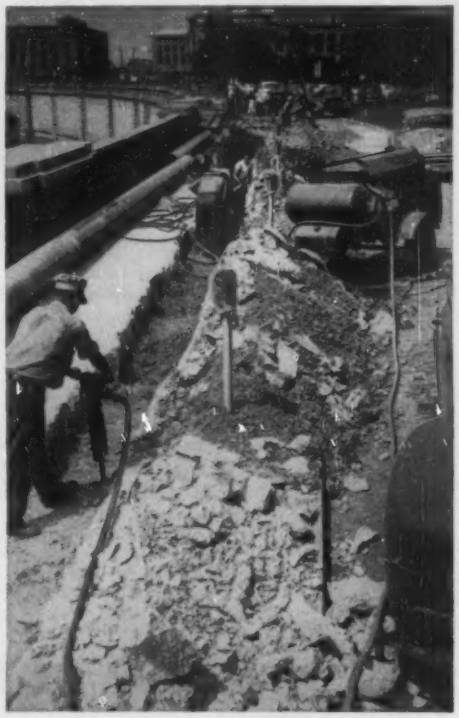
Steep hillsides, like this one, are often encountered in public parks, and usually present a real maintenance problem. This particular area is effectively handled with the new model F Chief tractor, with 7-gang push type fairway mowers attached.

The tractor, made by the Worthington Mower Co., Stroudsburg, Pa., has front-wheel drive and rear-wheel steering. With cutting heads out in front, the grass is mowed ahead of the power unit wheels, thereby eliminating streaking, and providing the operator with a clearer view.

A complete description of the new model F tractor is available on request from the manufacturer. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 938.

Graybar Electric Opens New Branches

The GRAYBAR ELECTRIC COMPANY'S Richmond district shattered a company precedent recently with the official opening of two new branch house buildings



Same tools . . . do 30% more work with JAEGER 125's

Capacity to get more work out of today's heavy air tools has made the "125" the most popular of all compressor sizes. Jaeger established this 125 rating 6 years ago and guarantees to deliver this volume at lowest cost per ft. of air.

←— To speed laying of pipeline in this busy boulevard, a pair of Jaeger 125's were used in place of obsolete 105 ft. compressors to do the job 30% faster.

Other "Jaeger standard" sizes 75 to 600 ft. See your Jaeger distributor, or write for Catalog JC-1.

THE JAEGER MACHINE COMPANY 505 Dublin Avenue Columbus 16, Ohio

PUMPS • MIXERS • TRUCK MIXERS • LOADERS • PAVING MACHINES

during the same week. A new branch, the 119th to be opened by Graybar nationally, was inaugurated at Rocky Mount, N. C., and two days before that the Norfolk, Va., branch opened its doors at a new location.

Both buildings are modern, one-story structures, each housing office and warehouse facilities and a display room. The Rocky Mount building has 16,000 square feet and the Norfolk branch 25,000 square feet of floor space. The buildings have been lighted to show in practical use the products of some of Graybar's industrial and commercial lighting suppliers. Both have sheltered loading docks, modern city counter facilities, and ample parking area.

Speeds Snow Removal on City Streets

The new Frink reversible trip-blade snow plow, attached to a motor truck, works well on streets, airport runways, and in parking areas. Its moldboard can be set to bulldoze the snow straight ahead, or it can be angled to either side at 15°, 28°, 37°, or 42° to carry the snow to the side.

The moldboard and drive frame assembly of the new reversible trip-blade snow plow are held in any one of the nine plowing positions by a reversing lock pin. Two quickly operated clamping levers increase rigidity, and prevent the locking pin from bending. In addition, the moldboard is so suspended from the drive frame assembly that it will not swing to one side of the truck when the blade is reversed.

Frink's reversible trip-blade snow plow is quickly adjustable from plowing to scraping position, and may be used interchangeably with the company's V-type snow plow, or one way blade type snow plow, using the same power or hand hydraulic truck attachments.

For full information, write directly to FRINK SNO-PLOWS, INC., CLAYTON, N. Y., or you may use the Post Card on the colored page in this section. Circle No. 925.

New Wayne Subsidiary

Line Mfg. Inc., Los Angeles, Calif., makers of industrial motor sweepers, will now operate as a subsidiary of the Wayne Mfg. Co., according to a recent announcement. This latest acquisition by Wayne extends the company's line from a small motorized sweeper to the large 3-cubic-yard capacity Wayne street sweeper.

Line models to be sold under the name include five basic units, ranging from 4.5 through 15 cubic feet capacity. The largest model is powered by a 2-cylinder, 14.6-hp engine, and has a 48-inch sweeping swath, automotive steering, a curb brush attachment, and new vacuum dust control.

In addition to a complete line of street and industrial sanitation equipment, Wayne Manufacturing makes mechanical leaf loaders. Main offices of the company are at 1201 E. Lexington St., Pomona, Calif.

Clears Snow-Filled Streets

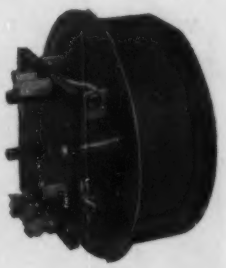
The City of Alexandria, Minn., loaded snow removal trucks at the rate of one every minute last December, using this Seaman Self-Propelled Pulvi-Mixer equipped with a Richardson Rotary Shovel Snow Plow. In a demonstration conducted by Borchert-Ingersoll, Inc. of St. Paul, Minn., the Seaman - Richardson equipment cleared curbside snow in a 6-foot-wide, 3-foot-deep windrow at the rate of two miles per hour in steady runs.

A Seaman Pulvi-Mixer clears snow at the rate of 2 miles per hour in steady runs.

TIME-O-MATIC
FLASHERS
JACK MOUNTED

Single or two circuits with or without built-in eliminators. Available with standard meter case or can be supplied separately with Jack mounting panel.

SPECIFY DEPENDABLE TIME-O-MATIC



A SIGN OF GOOD CONTROL

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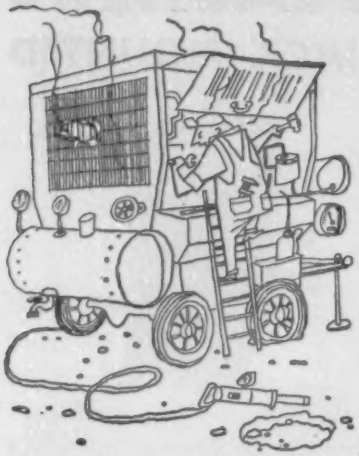
TIME-O-MATIC CO.
1106 Bahls Street
Danville, Illinois

Why lose money with big, oversize compressors?



a

SMITH COMPRESSOR

will do the job for less!

Save your big compressors for big jobs! The Smith 120-P will handle the majority of your compressor jobs, for less! Heavy-duty Chrysler engine has 413 cu. in. displacement. Simple, compact compressor design—no coupling or clutch. Compressor pistons operate at 120° apart for smooth, even flow of air. Corrosion-free manganese bronze compressor valves with stainless steel discs. Finned after-cooler reduces air temperature approx. 200°, gives longer hose life!

. . Also the Smith 70-P Compressor

MAIL COUPON NOW!

Gordon Smith & Company, Inc.
425 College Street, Bowling Green, Ky.
Send complete literature and prices on Smith 120-P and 70-P compressors.

NAME_____

ADDRESS_____

CITY_____ STATE_____

☐ Also send name of nearest dealer.

Purchasing News

New Saw Features Reciprocating Blade

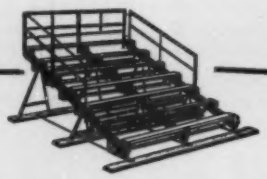
A new portable power saw, as simple to use as a hand saw, weighs less than 25 pounds and features a precision-guided reciprocating blade directly connected to the gasoline engine. In addition to felling and limbing trees quickly, it saws heavy timbers, cuts posts and piling, and may be used for trimming, notching and ripping lumber. The 18-inch reciprocating blade eliminates kicking and grabbing, and the saw will follow a chalk line, or cut a kerf of only 3/16-inch.

Designed with a special float-type carburetor with a wick feed, the saw is able to cut in any position, including upside down. No swivels or special adjustments are required. The trigger throttle features automatic shutoff so that the ignition system grounds automatically when the trigger is released.

The blade of the new gasoline power saw is easy to change, without tools, in about 30 seconds. Sharpening, too, is quickly accomplished, and the entire unit may be disassembled or assembled in less time.

Additional information on the Wright saw is available from WRIGHT POWER SAW AND TOOL CORP., 262 LONGBROOK AVE., STRATFORD, CONN., or you may use the Post Card on the colored page in this section. Circle No. 935.

★ ★



Single Section Model 6 Portable Bleacher

PORTABLE SEATING FOR EVERY OCCASION

With Hussey Patented Portable Steel Bleachers and Grandstands, one set of seats will take care of both your indoor and outdoor needs. They cannot collapse and can be erected and taken down faster and easier than any other stand on the market. Low in cost. 6, 10 and 15 tier 12 foot sections IN STOCK. Other sizes made to order. Also, "Roll-Out" Gym Seats.

FREE catalogs and complete information on request. Write today.

Iron-workers HUSSEY Since 1835

HUSSEY MFG. CO., INC.
546 R. R. Ave., N. Berwick, Maine

Also mfrs. of Water Sports Equipment, Flag Poles, and Miscellaneous Iron.

Specialists

Sewer and pipe cleaning equipment

STEWART

- SEWER RODS
- SECTIONAL STEEL RODS
- COMPLETE SEWER CLEANING MACHINES
- BRACES AND GUIDES
- BUCKETS, ROOT CUTTERS AND DRAG TOOLS

Save the expenses of experimenting. Consult Stewart for any problem in the SPECIALIZED FIELD of pipe cleaning

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SINCE 1901

W. H. STEWART, INC.
P.O. Box 767, Syracuse, New York

New

PARCOA*

Card-Key Control Operates Parking Lots

AUTOMATICALLY...

WITHOUT ATTENDANTS

Now you can solve parking problems in your community . . . relieve congestion and provide revenue—and do it automatically, without attendants.

The amazing new PARCOA system does the job safely, economically and dependably. The simple electrical mechanism controls entrance and exit gates, actuated by card-keys issued only to legal parking customers.

Low in first cost. Easy to install. Minimum maintenance. No attendants needed. Controlled capacity with 100% collection assured. Coded card-key can be changed as desired. System pays for itself quickly.

Write for illustrated brochure and name of nearest distributor.

*Your choice of controls (coin, card, token or any combination) makes this system readily adaptable to individual requirements.

PARCOA

PARKING CORPORATION OF AMERICA

Division of Johnson Fare Box Company
Specialists in revenue collection since 1909
33 No. La Salle Street, Chicago 2, Illinois
Sales and Service Offices in Principal Cities

Purchasing

Clean Copies Quickly

Where a city must reproduce announcements and reports, an automatic feed Duplicopy machine, the A-44 All-Star, will provide clean, wrinkle-free copies quickly. There are no stencils required, only a paper master on which

you can type, write, draw, or trace the material to be reproduced.

Recently improved for easy operation, with a handle that turns without tension and whip, the unit incorporates a new, positive feed mechanism, and the Magic Fluid Flow, a patented moistening device which eliminates adjustments and flooding. This same Magic Fluid Flow provides perfect copies that are sharper and brighter from the first sheet.

Further information is available from THE DUPLICOPY CO., 224 W. ILLINOIS ST., CHICAGO 10, ILL., or you may use the Post Card on the colored page in this section. Circle No. 945.

Extra Length Clay Sewer Pipe

Some 12 inches longer than ordinary clay pipe, the 4-foot lengths of vitrified clay pipe offered by this company are produced in 8- through 24-inch diameters in standard and extra strength types, and are recommended for storm and sewer lines. They are easy and economical to install, requiring a minimum number of joints and fewer man-hours.

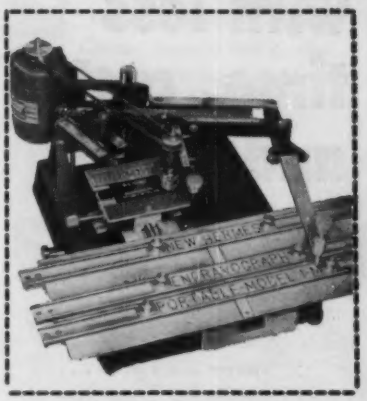
Coupled with a new pressure joint developed especially for vitrified clay pipe, 4-foot Robinson pipe gives you a leakproof sewage line. The pressure joints utilize a rubber gasket inflated by hand with a special grout mixture to form a tight, infiltration-proof joint. This joint has proved particularly successful in high-water table and wet-trench installations.

For full information on Robinson 4-foot clay pipe and the new pressure joint, write A. E. Williams, sales manager, Vitrified Products Division, THE ROBINSON CLAY PRODUCTS CO., 65 W. STATE ST., AKRON 9, OHIO.

MARKERS

NAMEPLATES

right on the premises



Portable machine, so simple to operate by anyone

- Make permanent attractive signs at less cost.
- Engraves on plastics, wood or metals.
- Tested and approved by City Departments.

NEW HERMES
ENGRAVING MACHINE CORPORATION
13-19 University Place • New York 3, N.Y.

Twin Tank
"Floor-King"
for mops to 36 oz.

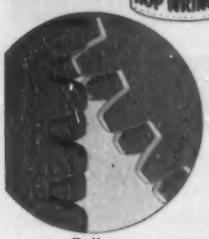
GEER — The Royal Family of MOP WRINGERS — PRES

Clean Floors with less time, cost and effort

GEER — The Royal Family of MOP WRINGERS — PRES

1. Extract *more* water per handle operation.
2. Squeeze mops drier . . . no slop or splash.
3. Wring mops uniformly.
4. Help prolong mop life.
5. Require minimum floor space.
6. Last longer.
7. Ball bearing casters and light weight.

GEER — The Royal Family of MOP WRINGERS — PRES



Exclusive Interlock Gearing multiplies pressure, squeezes mop DOWN, not out!

Fully guaranteed. Available in two styles and three size ranges to meet all mop wringing requirements.

Ask for Literature

GEERPRES WRINGER, Inc.

P.O. BOX 658 MUSKEGON, MICHIGAN

Purchasing News

Lighted Traffic Discs Keep Cars In Place

The latest word in traffic-line markings is the efficient traffic disc containing a frosted lamp, an Alzak reflector, and a 5⅜-inch stepped lens. The result is a flush fixture with a beam which aids in defining the traffic lanes and separations not only at night, but by day as well, in underpasses, lower-level roadways, and tunnels.

The traffic separator light, made by THE PYLE-NATIONAL CO., CHICAGO 51, ILL., is made vaportight by a gasketed lens and clamp ring which are easily removed for relamping.

Additional information will be furnished by the company. Write directly, or use the Post Card on the colored page in this section. Circle No. 946.

New Cart Facilitates Park Maintenance

Speed maintenance work in parks and on public grounds with a new utility cart made by Canvas and Metal Specialties, Inc. A heavy canvas bag, suspended in a steel frame, is used to gather grass, leaves, waste paper, and clippings. When the bag is removed, the frame is transformed into a handy truck which is large enough to move

IN CASE OF EMERGENCY USE BARTLETT No. 1 BC WIRE CUTTER

The Emergency Wire Cutter is readily used to cut 110 and 220 RC wire and easily operated from the ground without use of a ladder. It can also be used safely for cutting hot 4800 volt primary and service wire when hanging down close to the ground. It has many other uses; thus it becomes the Safest—Fastest—Easiest tool of its kind to operate. This tool is one of the most necessary for trouble-shooting. The laminated sitka spruce pole which is furnished in two 6-ft. lengths can be used either as a six foot pole or easily joined together with our P156 Sleeve to make a twelve foot pole.

Illustrated folder furnished on request.

(Wt. complete, 8 lbs., 5 oz.)

BARTLETT MFG. CO.

3030 East Grand Blvd., Detroit 2, Mich.

BETTER HOSE CARE—WITH

CIRCUL-AIR

THE AIR CONDITIONING

FIRE HOSE DRYER

Circul-Air is the patented, electrically operated hose dryer which circulates prewarmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It's designed to lengthen hose life, improve the appearance and functional design of new fire houses, and to save floor space and hard work. No other drying method is so fast—so economical—so easy to use.

Circul-Air Dryers have passed the Approvals Tests and are listed by the Underwriter's Laboratories, Inc., Chicago and the Canadian Standards Association.

Write for Catalog TODAY

THE CIRCUL-AIR CORPORATION

575 East Milwaukee Detroit 2, Michigan

waste receptacles from place to place.

Constructed of welded steel 20- x 20- x 40 inches high, the new unit weighs 25 pounds, and is easily transported on grass or pavement by 10-inch semi-pneumatic rubber-tired ball bearing wheels. The collapsible steel framework requires minimum storage space.

Write Canvas and Metal Specialties, Inc., Groveville, N. J., for full information, or you may use the Post Card on the colored page in this section. Circle No. 944.

Remove the canvas bag, and the sturdy steel frame becomes a handy truck.

Keeps Water Level Accurate

You can guard against low water level by checking the wells in your community with a portable electric sounder, made by C. W. Lutts, 705 E. Plaza Serena, Ontario, Calif. These inexpensive level indicators provide accurate water level and drawdown readings under all conditions. They are available in two types, the recorder and the standard, complete with cabinet and a metal cable spool and other fittings.

Constructed of ⅜-inch plywood, with brass corner plates, the Lutts sounder features a meter, a Veeder counter registering in tenths of a foot, a plug-in jack for the lead to the well casing, and a test lug for checking the circuit, all mounted on the front panel. The metal cable spool is equipped with a convenient crank for rewinding, and is powered with a 45V plug-in type of B battery.

City officials interested in additional information on the new water level indicator may write directly to the manufacturer, or use the Post Card on the colored page in this section. Circle No. 927.

Township Manager Wanted

McCandless Township, Allegheny County, Pennsylvania, a rapidly growing residential district, desires the services of a qualified person to manage its municipal affairs. Applicants should have experience in municipal administration, and sufficient engineering background to be familiar with the construction and maintenance of highways and sewers, land subdivision control, zoning, and other phases of government. Applicants with previous municipal experience as Manager or Assistant Manager preferred.

Requests for application blanks may be addressed to: Mr. David H. Sullivan, P. O. Box 656, Pittsburgh 30, Pennsylvania.

Applicants should not attempt to secure personal interviews until notified.

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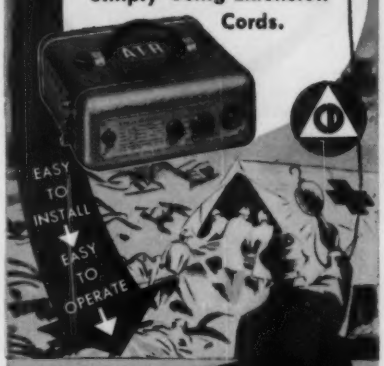

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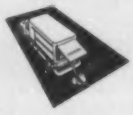

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Purchasing News

Planning a Durable Tennis Court

This Laykold tennis court is typical of park installations in 23 cities throughout the country. It is easily installed, and its resilient surface is unaffected by weather.

How to plan an effective, long-lasting tennis court installation for city parks, is explained by the AMERICAN BITUMULS & ASPHALT CO., 200 BUSH ST., SAN FRANCISCO 4, CALIF.

In recommending the Laykold tennis courts, the company points out that these installations are built with "true-plane" surfaces for smooth, easy playing. The resilient surface is immune to changing weather conditions, and is ready for use minutes after rain. It is inexpensive to install, and requires a minimum amount of maintenance to keep it in first-class playing condition.

Detailed information on Laykold installations is available directly from the company, or you may use the Post Card on the colored page in this section. Circle No. 947.

New Coupling for Transite Pressure Pipe

Using the new Ring-Tite coupling, Johns-Manville transite pressure pipe is easy to install—even under difficult weather conditions, in loose sand, and wet trenches. The coupling provides automatic positioning for locked-in tight-

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This new M & M Brush Grinder rapidly converts 7 truckloads of brush into one truckload of chips.

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81

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ness, and the completed pipe line assures the free flow of water under pressure.

Johns-Manville Ring-Tite coupling is made up of a sleeve of asbestos-cement and two rubber rings. The sleeve has two grooves machined into the inner wall which locate the rings accurately and hold them locked firmly in position.

Only a few simple steps are required to connect pipe with the new coupling.

First, the pipe-ends are spread with an easy-to-apply Johns-Manville lubricant to facilitate assembly. The pipe is then quickly and easily aligned, and a simple coupling puller attached. A steady, easy swing of the lever slides the pipe under the rings and along the lubricated surfaces until movement is stopped automatically by the shoulders on the pipe.

Transite pressure pipe and the new Ring-Tite coupling are made of corrosion-resistant asbestos-cement. They are described in a new folder from JOHNS-MANVILLE, BOX 60, NEW YORK 16, N. Y. Write directly, or use the Post Card in this section. Circle No. 910.

Vertical Parking

Charles W. Lerch, president of CHARLES W. LERCH & ASSOCIATES, BOARD OF TRADE BLDG., CHICAGO 4, ILL., advises that his firm has been active for five years in promoting the use of operatorless elevators for large office buildings. Today, he says, the operatorless elevator is widely accepted.

In the field of parking, mechanical garages are very new, and there is only one fully automatic garage. Two years ago the need was recognized for coordinating the parking facilities with other transportation facilities for multi-storied structures in our big cities. Clients have had the firm study vertical car parking garages to determine capital and operating cost.

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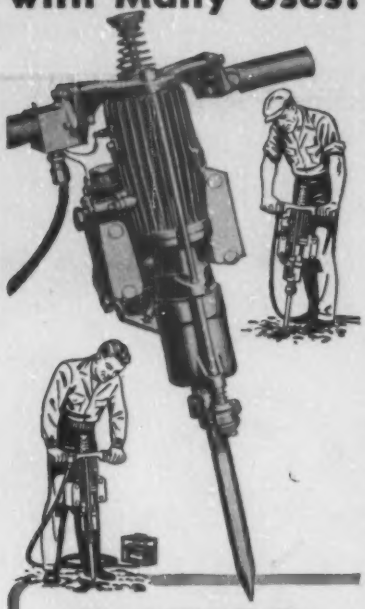

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Ask For This New **BULLETIN 613**

Purchasing News

High-Capacity Food Waste Disposer

Collecting normally heavy loads of refuse from cafeterias, restaurants, and other volume-feeding establishments is a time-consuming job for most sanitation officials, and can easily be avoided by advising the installation of these commercial-type food-waste disposers.

Designed by the IN-SINK-ERATOR MFG. CO., RACINE, WIS., the high-capacity commercial grinder is powered by a ½-hp, capacitor-type motor that operates on 115/230 volts and provides a surplus power factor. Two models are furnished with a stainless-steel hopper measuring either 15 or 18 inches, each including a scrap block. These units are easy to install in metal counter tops. A third model has a smaller stainless-steel cone, and may be fastened to a counter top with an opening of only 5⅞ inches diameter. Still another model is available for use in diet kitchens, and can be attached to a sink bowl with a 3½- to 4-inch strainer opening.

In operation, food waste is either washed or scraped directly into an In-Sink-Erator unit at any of several points of origin. When the disposer switch is turned on, a flow of water is automatically delivered to the unit, and the waste disappears into the shredding chamber.

A complete description of the new commercial-type food waste disposer is available from the company. Write, or use the Post Card on the colored page in this section. Circle No. 937.

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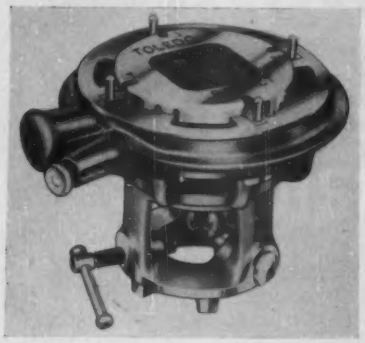
Pipe Threader Attachment

The Toledo Simpact 1- to 2-inch self-contained ratchet threader is now available with an improved cam-type holder, according to the TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO. The



new holder is designed with broader jaws for a more positive grip on the pipe, and with a free-action cam that sets instantly to size.

Quick and positive setting of Toledo Simpact high speed steel dies can be made to four pipe sizes, 1 to 2 inches. To change the die size, you merely push the size selector button, slip the dies in proper steps, and turn the head slightly. Lightweight, the tool will thread pipe projecting through a wall as short at 6¼ inches. The dies recede along tapered steps insuring high accuracy in cutting threads.

A complete description of the dependable Toledo Simpact and the new cam-type pipe holder may be obtained by writing directly to the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 924.

New Moto-Bug Handles Greater Loads

An addition to the Moto-Bug line offered by the Kwik-Mix Co., Port Washington, Wis., is the R-15, a heavy-duty unit with a hopper capacity of 2,000 pounds, and featuring 15 cubic feet of space for the load. It weighs 1,100 pounds, and includes an operator's seat mounted on a center ridge piece at the rear of the hopper. This location gives the operator a clearer view on all sides.

As a flatbed platform truck, the new Moto-Bug has a load area of 34 x 54 inches. The platform is equipped with stake pockets and a latch for quick dumping.

Power for the R-15 is provided by a Wisconsin single-cylinder, air-cooled gasoline engine with 3.4 to 1 reduction, developing 8.3 hp at 3,400 rpm. Maximum speed is 6 mph. forward or reverse, and is controlled by a hand throttle. Transmission is direct from engine to transmission case through shaft and universal joints.

For its S-10 Moto Bug, the company has developed an operator's guard and support which is available as optional equipment. A heavy gauge steel upright post ending in a broad curved steel plate, it is welded to the riding top of the unit, and provides the operator with a comfortable back support, as well as adequate protection against sudden jolts.

Information on the new R-15 and the new safety attachment for the S-10, is available directly from the KWIK-MIX CO. SALES OFFICE, MILWAUKEE, WIS., or you may use the Post Card on the colored page in this section. Circle No. 940.

"BUFFALO" Municipal Castings come in every size and style!

No matter what your needs may be, you're pretty sure to find a "Buffalo" casting to serve the purpose, whether it be in valve, service or roadway boxes, meter boxes, manhole rings & covers, or other municipal castings.

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3 pc. screw type 5¼" valve box

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About People

After a 4-year association with the **Pressed Steel Car Co., Inc.,** Melrose Park, Ill., George W. Stanley, Jr., has been appointed general manager of the firm's Solar-Sturges Mfg. Division. The news was released by John I. Snyder, Jr., company president and chairman of the board, who reports that Mr. Stanley will direct the manufacture of waste receptacles, dairy equipment, and stainless steel cookware.

D. E. Broggi, president of the **Neptune Meter Co.,** New York City, informs us of the appointment of Wentworth Smith as vice-president in charge of sales. Mr. Smith, formerly general sales manager, was advanced as part of a reorganization of the company's sales division. He is succeeded as general sales manager by John J. Carroll. The sale of Neptune petroleum and industrial meters will be under the direction of Walter H. Sieger.

Wentworth Smith **John J. Carroll**

A new district manager for **Gar Wood Industries, Inc.,** Wayne, Mich., has been announced by D. J. Davis, manager of the company's Tractor Equipment Sales. He is R. L. Schurhammer, formerly with the Peter Kiewit Sons' Co. Mr. Schurhammer will work with Gar Wood, Allis-Chalmers dealers in Iowa, Minnesota, North and South Dakota, Montana, Nebraska, and Wyoming.

When Wesley Bintz, a widely known consulting engineer specializing in the design and operation of swimming pools, was elected president of the Grand Valley Chapter of the Michigan Society of Professional Engineers in 1951, he succeeded in raising the chapter's membership from 65 to 173 members. A short time later he was elected vice-president of the Michigan Society of Professional Engineers. Recently, Mr. Bintz was elected president of the Society.

Wesley Bintz

H. G. Boyle has been named communications field sales manager; D. C. Bright, administrator of communications national accounts; and E. J. Hart, microwave equipment sales manager, for the Engineering Products Division of the **Radio Corporation of America.** The company also announces the appointment of five new district sales managers for communications equipment. They are: Bernard Gest, central region; K. R. McHenry, southwestern region; D. B. McKey, southern region; D. L. Pearlston, eastern region; and D. O. Reinert, northeastern region.

Latest additions to the staff of the **General Filter Co.,** Ames, Iowa, are Keith E. Demorest and Conrad E. Lawlor. Mr. Demorest is a specialist in the layout and design of water-treatment equipment. Mr. Lawlor, an industrial sales engineer for the State of Iowa, handles the sales of industrial water-treatment plants and water-treating equipment for swimming pools.

Lloyd A. Rager, former sales promotion manager for the **LeTourneau-Westinghouse Co.,** Peoria, Ill., succeeds J. H. Serkowich as the firm's advertising manager. Mr. Serkowich is scheduled to direct advertising and publicity for the **Westinghouse Air Brake Co.,** of Pittsburgh, Pa.

Lloyd A. Rager

Water Seals, Inc., Chicago, Ill., announces the election of Frank M. Fucik as president. Arthur Hoffman moves up to take Mr. Fucik's vacated post of vice-president.

When Joseph A. Schneller takes over as sales director for **Lighting Products, Inc.,** Highland Park, Ill., he not only will supervise the firm's national sales activities, but will direct advertising and sales promotion as well. A member of the Illuminating Engineering Society, Mr. Schneller has over 20 years' experience in the lighting field.

From the **Oren Roanoke Corp.,** Roanoke, Va., we learn of the appointment of a new chief engineer, Phil Rawlins, to supervise the development, design and construction of the company's special fire truck chassis. These three operations were recently consolidated at the firm's Roanoke plant.

Robert C. Gloppen was recently named sales manager of **Yeomans Brothers Co.** sewage-treatment division. Main offices of the firm are located in Melrose Park, Ill.

A new vice-president, W. W. Frymoyer, is announced for **The Foxboro Co.,** Foxboro, Mass., by B. H. Bristol, company president. Mr. Frymoyer, who dates his association with Foxboro from 1926, is a former member of the National Bureau of Standards, Washington, D. C.

News from Stanley E. Johnson, Sr., vice-president in charge of sales for **The Cooper-Bessemer Corp.,** Mount Vernon, Ohio, concerns the appointment of Robert F. Lay as assistant general sales manager. Mr. Lay last served as chief engineer of the company's Product Division. Another Cooper-Bessemer announcement, this one from Gordon Lefebvre, president and general manager of the firm, names Eugene L. Miller as new assistant general manager.

Robert F. Lay **Eugene L. Miller**

Jerrold Electronics Corp., Philadelphia, Pa., has a new general manager, according to Milton J. Shapp, president of the firm. He is Herbert Jacobs, formerly associated with Jerrold's sales department.

William F. Young, recently appointed sales engineer for the **De Laval Steam Turbine Co.,** Trenton, N. J., will head the company's new sales office at 25 S. Bemiston Ave., St. Louis, Mo. This new office will operate as a branch of De Laval's Chicago District Office.

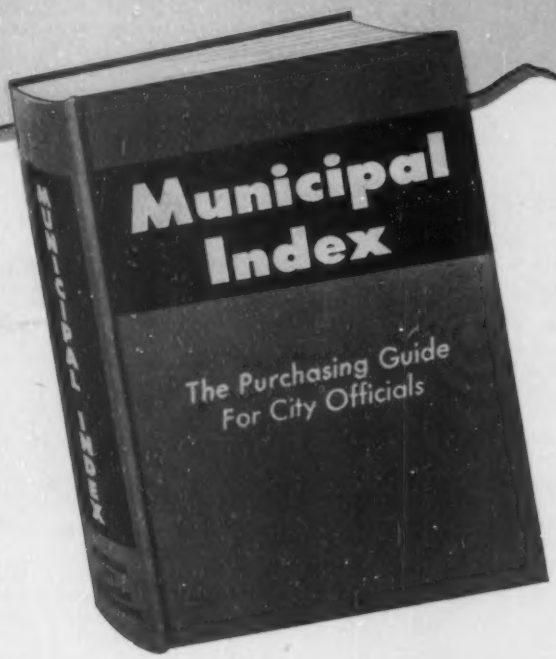
Homer G. Abbott has been elected vice-president in charge of production for **Standard Steel Works,** North Kansas City, Mo. A member of the firm's production staff for the past 18 years, he will supervise the manufacture of transports, road machinery, agricultural equipment, and industrial and display steel shelving.

Homer G. Abbott

Who's Who in

Municipal Equipment and Supplies

Indexed by Products — Turn to page numbers shown for listing of manufacturers under each product



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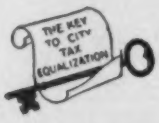

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